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BULLETIN No. 469. JANUARY, 1928

Meteorological Observations
AT THE
MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION.

...RY OF THE
MASSACHUSETTS Agricultural Col...
AMHERST, MASS.

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 51 ft. Above sea level, 273.5 ft.
Height of Wind Instruments 72 ft. Time used, 75th Mer.

MONTHLY SUMMARY.

Pressure. In inches.

Maximum reduced to freezing,	30.29, 16th, 9A.
Minimum reduced to freezing,	28.60, 25th, 6A.
Reduced maximum reading,	30.61, 16th, 9 A.
Reduced minimum reading,	28.90, 25th, 6 A.
Mean semi-daily reduced	29.960
Monthly range	1.71

Air Temperature. In Degrees Fahr.

Highest	54.5, 7th, 2-30 P.
Lowest	−3.5, 30th, 7 A.
Mean hourly	27.7
Mean of means of max. and min.	27.3
Mean sensible (wet bulb)	24.4
Monthly range	58.0
Highest mean daily	44.4, 7th
Lowest mean daily	10.8, 30th
Mean maximum	35.2
Mean minimum	19.3
Mean daily range	15.9
Greatest daily range	36.5, 25th
Least daily range	5.0, 12th

Humidity.

Mean dew point	20.1
Mean force of vapor	.157
Mean relative humidity	78.9

Precipitation. In inches.

Total precipitation, in inches	2.19
Number of days on which .01 inch or more rain fell	11
Total snow in inches	½
Days of sleighing	5

Wind.

Total movement	6419m
Greatest daily movement	544m, 25th
Least daily movement	28m, 31st
Mean daily movement	207m
Mean hourly velocity	8.6m

Maximum pressure per square foot, 25.0 lbs = 71m per hour, 25th, 5 P. W.

Maximum velocity for 5 minutes, 42m per hour, 25th, 6 P., W.

Prevailing direction, West

Summary.

West	32 per cent
North Northwest	13 " "
West Southwest	13 " "
Southwest	13 " "
Other directions	29 " "

Weather.

Mean cloudiness observed	54 per cent
Total cloudiness recorded by the Sun Thermometer	165 hours = 56 per cent
Number of clear days	4
Number of fair days	14
Number of cloudy days	13

Bright Sunshine.

Number hours recorded. 132 = 44 per cent.

Rain, 1st. 9th, 13th, 14th, 19th, 24th, 25th, 26th

Thunder and Lightening, 13th.

Snow, 10th, 16th, 19th, 20th, 21st, 26th, 28th, 29th

Gales, 40m, 1st, W.; 39m, 2d. W.N.W.; 51m, 5th, N. W.; 50m, 14th W. 35m, 17th N.W.; 41m, 20th, N. W.; 44m, 21st; W.; 71m, 25th, W.; 36m. 26th, W.N. W.; 42m, 29th, N.

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DAILY SUMMARY.

Day.	Barometer Reduced to Sea Level.			Temperature. Ground Shelter.							No. Hours of Bright Sunshine
	Maximum	Minimum.	Mean. Semi-daily	Maximum	Time.	Minimum.	Time.	Mean of Max. and Min.	Mean Hourly Draper	Mean Sensible Wet Bulb.	
1	29.69	29.18	29.472	45.0	0 A	16.0	12 P	30.5	30.5	25.0	0.0
2	30.28	29.69	30.117	21.0	1 A	10.0	12 P	15.5	14.5	12.0	5.8
3	30.40	30.30	30.369	25.0	3 P	5.5	7:30 A	15.2	14.5	11.0	7.2
4	30.44	30.17	30.362	25.5	2:30 P	5.0	7 A	15.2	15.1	12.0	6.3
5	30.42	30.11	30.288	29.0	10:30 A	17.0	6 A	23.0	21.5	18.2	6.3
6	30.33	30.10	30.199	38.0	2 P	19.5	0 A	28.8	31.2	29.5	0.3
7	30.15	30.10	30.104	54.5	2:30 P	34.5	4 A	44.5	44.4	41.5	5.5
8	30.13	30.07	30.112	47.0	1 P	37.0	12 P	42.0	42.4	37.5	0.0
9	30.10	29.71	29.840	41.0	3 P	34.0	12 P	37.5	38.4	38.2	0.0
10	29.71	29.62	29.673	38.5	4 P	29.5	4 A	34.0	34.2	33.0	0.0
11	29.71	29.46	29.559	43.0	4 P	33.0	1 A	38.0	36.8	34.5	0.0
12	29.88	29.71	29.874	39.0	2 P	34.0	8 P	36.5	36.5	32.0	1.7
13	29.80	29.45	29.562	45.0	3 P	35.0	0 A	40.0	40.1	39.5	0.0
14	30.00	29.60	29.906	44.0	2 P	38.0	7 A	41.0	40.0	36.2	5.0
15	30.47	29.68	30.144	46.0	8:30 A	20.0	12 P	33.0	36.0	33.0	3.7
16	30.61	30.02	30.435	23.0	4 P	12.5	6 P	17.7	18.8	16.5	2.5
17	30.02	29.72	29.809	38.5	5:30 A	23.0	0 A	30.7	33.3	29.0	4.5
18	29.87	29.72	29.833	39.0	2 P	31.5	12 P	35.3	36.3	32.8	6.5
19	29.99	29.34	29.744	39.5	2 P	24.5	8 A	32.0	32.1	26.8	6.0
20	29.62	29.31	29.416	34.0	9:30 A	13.0	12 P	23.5	27.4	26.0	6.0
21	30.05	29.61	29.844	14.0	11 A	6.5	8 P	10.3	11.0	9.3	7.0
22	30.22	30.03	30.152	28.0	3 P	8.5	4 A	18.3	20.0	18.0	8.3
23	30.21	29.96	30.076	41.0	3 P	27.5	0 A	34.3	34.2	30.5	8.0
24	30.26	29.45	29.948	43.0	12 P	16.5	8:30 A	29.7	31.1	28.5	5.5
25	29.64	28.90	29.190	51.0	3 A	24.5	12 P	37.7	37.1	31.7	1.0
26	30.09	29.64	29.904	29.5	3:30 P	16.5	12 P	23.0	23.2	19.5	3.5
27	30.24	30.09	30.222	28.0	4 P	8.5	7:30 A	18.3	17.7	12.0	6.0
28	30.19	29.92	30.013	22.5	3:30 P	8.5	5 A	15.5	15.6	13.7	4.4
29	30.15	29.83	29.964	22.5	2 P	8.0	12 P	15.3	16.6	15.3	3.6
30	30.35	30.15	30.331	27.0	3 P	−3.5	7 A	11.7	10.8	5.0	8.7
31	30.33	30.27	30.308	30.5	4 P	4.0	7:30 A	17.2	16.5	10.2	9.0

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AMHERST, MASS.

DAILY SUMMARY.

Day.	Humidity.			Wind.					Precipitation.			
											Total in Inches.	
	Mean Dew Point.	Mean Force vapor.	Mean Relative Humidity	Prevailing Direction.	Total Movement in Miles.	Maximum Pressure Per Square Ft	Miles per Hour.	Time.	Beginning.	Ending.	Rain.**	Snow.
1	19.5	154	71.0	W.	328	8.0	40	9 P	0 A	3 A	.05	
2	4.0	.084	65.5	W. N. W.	337	7.5	39	10 A				
3	6.0	.083	71.0	W.	80	0.0	—	—				
4	6.5	.083	76.5	S.S.W.	53	0.0	—	—				
5	15.5	.107	85.0	W.	277	13.0	51	4 P				
6	26.0	.170	82.0	W.	135	0.5	10	5 A				
7	36.5	.300	74.5	W.	175	2.0	20	1 P				
8	34.5	.242	83.5	W.	75	0.0	—	—				
9	37.5	.233	98.0	S.	60	0.0	—	—	9 A	1 P	.10	
10	29.5	.207	79.5	W.S.W.	144	1.5	17	5 P	10 A	11 A	T	T
11	31.0	.215	82.0	W.S.W.	196	3.0	25	7 P				
12	27.0	.202	72.5	W.S.W.	162	2.0	20	4 P				
13	39.5	.244	98.0	S.S.W.	199	3.5	27	8 P	5 A	12 P	.18	
14	33.5	.229	85.0	S.W.	262	12.5	50	5 A	8 P	11 P	.04	
15	28.0	.225	72.0	N.N.W.	232	5.0	32	1 P				
16	12.0	.100	79.0	N.W.	124	1.0	14	1 A	6 P	10 P	.40	1
17	22.5	.183	67.5	W.N.W.	217	6.0	35	9 A				
18	28.0	.206	75.0	W.N W.	247	4.5	30	6 A				
19	22.5	.157	81.0	N.E.	128	1.0	14	6 P	5 P	12 P	.41	2
20	23.5	.152	85.5	N. W.	304	8.5	41	10 P	8 A	8:30A	T	T
21	7.0	.070	90.0	W.	482	9.5	44	2 P	8 A	8:30A	T	T
22	14.0	.110	81.5	S.W.	259	4.0	28	12 M				
23	27.0	.189	85.5	S.W.	296	5.5	33	2 P				
24	24.5	186	80.5	W.S.W.	73	0.0	—	—	9 P	12 P	.40	
25	23.0	.214	63.5	W.N.W.	544	25.0	71	5 P	0 A	3 A	.51	
26	14.5	.114	77.5	W.	337	6.5	36	0 A	4:30 P	8 P	.02	½
27	8.5	.085	81.0	W.	125	2.0	20	1 A				
28	8.5	.090	76.5	N.	179	3.0	24	7 P	10 A	12 P	.01	T
29	11.5	.094	84.0	N.	324	9.0	42	1 P	0 A	8 A	.07	1
30	−3.0	.062	66.0	W.	37	0.0	—	—				
31	5.5	.079	77.0	S.W.	28	0.0	—	—				

** Rain or melted snow at base of tower.

* Included in following day.

REMARKS

The weather during the month was marked by unusual high winds and large fluctuations in barometric pressure. The number of gales was large and a few exceeded fifty miles per hour. The wind was less variable than usual in direction, much the greater part coming from the west or points of compass nearly west.

Except for the general absence of snow the weather was seasonable. The amount of snow was small and only a few days of sleighing were recorded.

The following were the more important features of the records of the several weather elements. The mean pressure was low for the time of year and the range of pressure unusually large. This was largely due to the very low reading of the 25th.

The mean temperature was three degrees higher than normal and the range for the month about the usual amount. The temperature fell below zero on only a single date and then only for a few hours. The last third of the month was the coldest.

The mean dew-point was nearly three degrees higher than usual and the relative humidity nearly normal.

The total precipitation was about sixty percent of the normal and much the larger part occurred as rain. The snowstorms were all light, the largest only two inches, and the ground was bare most of the month. A moderate thunderstorm occurred on the 13th, a very unusual occurrane at this time of year. Many days showed a large wind movement and changes of direction were not so frequent as usual.

The amount of sunshine was nearly the usual value.

J. E. OSTRANDER, Meteorologist

H. BAUMGARTNER, Observer.

MASS
AMHERST, MASS.

BULLETIN No. 470. FEBRUARY, 1928

Meteorological Observations
AT THE
MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION.

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 51 ft. Above sea level, 273.5 ft.
Height of Wind Instruments 72 ft. Time used, 75th Mer.

MONTHLY SUMMARY.

Pressure. In inches.

Maximum reduced to freezing,	3040., 6th, 9 A.
Minimum reduced to freezing,	29.02, 18th, 3 P.
Reduced maximum reading,	30.73. 6th, 9 A.
Reduced minimum reading,	29.33, 18th, 3 P
Mean semi-daily reduced	30.068
Monthly range	1.40

Air Temperature. In Degrees Fahr.

Highest	50.5, 4th, 3-30 P.
Lowest	−3.5, 26th, 7 A.
Mean hourly	25.7
Mean of means of max. and min.	25.5
Mean sensible (wet bulb)	22.4
Monthly range	54 0
Highest mean daily	40.4, 15th
Lowest mean daily	9.6 26th
Mean maximum	34.4
Mean minimum	16.7
Mean daily range	17.6
Greatest daily range	31.0, 2d
Least daily range	4.0, 9th

Humidity.

Mean dew point	17.1
Mean force of vapor	.139
Mean relative humidity	77.2

Precipitation. In inches.

Total precipitation, in inches	2.90
Number of days on which .01 inch or more rain fell	10
Total snow in inches	8½
Days of sleighing	5

Wind.

Total movement	5377m
Greatest daily movement	348m, 20th
Least daily movement	21m, 1st
Mean daily movement	185m
Mean hourly velocity	7.7m

Maximum pressure per square foot, 6.5 lbs = 36m per hour, 2d. 3 P.W.
Maximum velocity for 5 minutes, 24m per hour, 2d, 3 P., W.
Prevailing direction, West Northwest.

Summary.

Northwest	17 per cent
West	14 " "
South Southwest	14 " "
North	10 " "
Southwest	10 " "
Southwest	10 " "
West Northwest	10 " "
North Northwest	10 " "
Other directions	15 " "

Weather.

Mean cloudiness observed	49 per cent
Total cloudiness recorded by the Sun Thermometer	136 hours = 44 per cent
Number of clear days	13
Number of fair days	6
Number of cloudy days	10

Bright Sunshine.

Number hours recorded. 176 = 56 per cent.

Rain, 7th. 8th, 9th, 14th, 15th, 16th, 17th, 23d

Snow, 1st, 3d, 9th, 11th, 17th, 18th, 23d, 27th, 29th.

Gales, 36m, 2nd W.: 36m, 5th, N.N.E.: 36m. 19th, N. W.: 35m, 20th W.N.W.

DAILY SUMMARY.

Day.	Barometer Reduced to Sea Level.			Temperature. Ground Shelter.							No. Hours of Bright Sunshine.
	Maximum	Minimum.	Mean. Semi-daily	Maximum	Time.	Minimum.	Time.	Mean of Max. and Min.	Mean Hourly Draper.	Mean Sensible Wet Bulb.	
1	30.29	29.86	29.992	27.0	11 P	8.5	3 A	17.7	17.0	16.5	3.2
2	30.49	29.95	29.275	25.5	0 A	15.0	12 P	20.2	20.6	15 8	9.0
3	30.71	30.44	30.606	27 0	3 P	−1.0	8:30 A	13.0	15.8	10.8	8.0
4	30.44	29.93	30.092	50.5	3:30 P	23.0	0 A	38.6	38.5	35.0	7.8
5	30.53	30.01	30.372	43.5	0 A	15.0	12 P	29.2	27.8	20.2	9 3
6	30.73	30.53	30 665	29.5	4 P	3.5	8 A	16.5	14.5	8.0	9.3
7	30.56	30.11	30.320	34.5	4 P	8.0	7:30 A	21.2	23.7	21.2	0.8
8	30.11	29.70	29.808	40.5	11:30 A	32 0	0 A	36.2	34.8	34.2	0.0
9	29.83	29.69	29.759	34.5	0 A	30.5	12 P	32.5	32.9	32.2	0 0
10	29.99	29.83	29.968	29.5	2:30 P	23 5	12 P	26 5	27.3	23.8	3.4
11	29.98	29 82	29.891	30.5	3 P	18.0	7 A	24.3	23 9	20.5	4.5
12	30.34	29.89	30.135	34 5	3 P	17.0	4 A	25.7	24.1	18.8	9.2
13	30.44	30.34	30 412	39 5	3:30 P	13.0	7:30 A	26.2	24.5	19.5	9.5
14	30.35	29 59	30 053	43.0	12 P	23.0	4 A	33.0	31.9	29.5	0.8
15	29.64	29.43	29 497	45.0	1:30 P	37 0	12 P	41.0	40.4	38.2	0.8
16	29 80	29.63	29 709	39.0	2 P	34.0	7 A	36.5	36.2	33.8	0.0
17	29.97	29.80	29.912	44.0	2 P	31.0	12 P	37.5	36 8	32.8	5.0
18	29.81	29.33	29.437	31.0	0 A	24 5	12 P	27.7	28.4	28.5	3.3
19	30.04	29.54	29.974	24.5	0 A	9.0	9 A	16.7	16.2	12.6	8.8
20	30.12	29.81	29.944	33.5	7 P	11.5	12 P	22.5	23.1	17.5	9.0
21	30.54	30.12	30.412	18.0	4 P	8 0	7 A	13.0	12 3	8.5	9.0
22	30.63	30.35	30.540	33 0	2:30 P	2.0	7 A	17.5	20.4	18.5	8.0
23	30.35	29.66	29.782	49.0	4 P	29.0	3:30 A	39.0	37.8	37.5	3.7
24	30.12	29 60	29.897	41.5	2 A	20 5	12 P	31 0	32.2	27.8	9.2
25	30.33	30.13	30.296	17.5	2 P	6.0	12 P	11.7	14.5	11.0	9 9
26	30.41	30.12	30.304	21.0	4 P	−3.5	7 A	8.7	9.6	5.7	10.5
27	30.12	30.81	29.932	39.0	3:30 P	13.0	0 A	26.0	27.2	24 3	7.4
28	30.19	30.09	30.149	32.0	4 P	15.0	7 A	23.5	23.0	17.7	10 6
29	30.09	29.66	29.842	40.0	3 P	19.5	0 A	29.7	31.0	29.3	5.7

DAILY SUMMARY.

	Humidity.			Wind.					Precipitation.			
											Total in Inches.	
Day.	Mean Dew Point.	Mean Force vapor.	Mean Relative Humidity *	Prevailing Direction.	Total Movement in Miles.	Maximum Pressure Per Square Ft	Miles per Hour.	Time.	Beginning.	Ending.	Rain.**	Snow.
1	14.0	.099	86.5	S.S.W.	21	0.0	—		6:30 A	9 A	.04	¾
2	9.0	.102	67.0	W.N.W.	345	6.5	36	3 P				
3	6.0	.084	81.0	S.W.	136	2.5	22	6 P	6:30 P	10 P	.02	¼
4	28.5	.240	72.5	S.S.W.	169	3.0	24	2 P				
5	10.5	.128	58.5	N.	263	6.5	36	3 P				
6	−7.0	.075	50.5	N.W.	170	4.5	30	1 A				
7	16.5	.134	79.0	S.W	121	1.0	14	3 P	9 P	12 P	.12	
8	34.0	.196	100.0	S.	39	0.0	—		OA	8 P	.33	
9	31.0	.185	97.5	S. E.	48	0.0	—		OA	12 P	.27	½
10	19.0	.140	73.5	N. N. E.	188	1.0	14	2 P				
11	15.0	.127	74.5	N. N. W.	104	0.0	—		8 A	12 M	T	T
12	9.5	.118	62.0	N.N.W.	200	4.5	30	1 P				
13	13.0	.119	75.0	N.W.	154	1.0	14	4 A				
14	28.5	.167	97.0	S.S.W.	111	0.0	—		6:30 P	12 P	.79	
15	37.5	.238	94.0	S W.	180	5.5	33	3 A	O A	7:30 P	.18	
16	28.0	.206	75.0	W.N.W.	158	4.0	28	OA	9 A	11 A	T	
17	29.5	.198	83.5	N. W.	182	3.0	24	5 A	8:30 P	12 P	.19	1½
18	28.0	.156	100.0	N.	167	3.0	24	5 P	O A	10 P	.30	5½
19	5.5	.083	71.5	W.N.W.	246	6.5	36	6 A				
20	10.0	.112	65.0	W.	348	6.0	35	4 P				
21	−1.0	.074	58.5	W.	335	5.0	32	4 P				
22	9.5	.121	65.5	S.S.W.	156	4.3	30	4 P				
23	37.0	.180	96.0	N.	108	0.0	—		O A	10:30 A	.66	T
24	22.0	.171	73.5	W.	306	5.5	33	11 A				
25	40.0	.080	70.0	N.W.	325	4.0	28	9 A				
26	−1.5	.066	67.5	N.N.W.	177	2.0	20	1 P				
27	22.0	.142	88.0	W.	218	5.5	33	2 P	11 P	11.30 P	T	T
28	10.0	.110	66.5	N.W.	207	3.5	26	5 A				
29	27.0	.174	90.0	S.	195	6.0	35	1 P	10 A	1 P	T	T

** Rain or melted snow at base of tower. * Included in following day.

REMARKS

The weather during the month was, in general, seasonable and rather pleasant for the time of year. The abscence of snow, except for a few days, detracted somewhat from normal conditions and the small amount of zero temperature was noticeable. While the wind movement was rather large the number of gales was small and they were of little intensity. Shifting winds were more noticeable than usual and changes of the character of the weather frequent.

The records of the several weather elements show the following features: The changes in barometric pressure were frequent and of considerable amount. The mean barometer was rather high and the maximum and minimum records considerably above their respective normal. The rapid fall in pressure on the 14th was especially noticeable. The range of pressure for the month was about the usual amount.

The mean hourly temperature was a little higher than the normal and the minimum temperature nearly five degrees higher than its average value for the month. The maximum temperature was about normal. The temperatnre fell below zero on only two days.

The mean dew point and relative humidity were both practically normal,

The amount of precipitation was more than ten per cent below the usual value and most of it occurred as rain. About one half of the total occurred during the third week, from the 14th to the 18th.

Only one snowstorm of any considerable amount occurred and after a few days a rain storm and mild temperature practically bared the ground again.

The amount of sunshine was somewhat more than normal, partially due to the additional day in the month.

J. E. OSTRANDER, Meteorologist

H. BAUMGARTNER, Observer.

BULLETIN No. 471. MARCH, 1928

Meteorological Observations
AT THE
MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION.

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 51 ft. Above sea level, 273.5 ft.
Height of Wind Instruments 72 ft. Time used, 75th Mer.

MONTHLY SUMMARY.

Pressure. In inches.

Maximum reduced to freezing	30.16, 6th, 11 P.
Minimum reduced to freezing	28.90, 27th, 11 A.
Reduced maximum reading	30.48, 6th, 11 P.
Reduced minimum reading	29.20, 27th, 11 A.
Mean semi-daily reduced	29.880
Monthly range	1.28

Air Temperature. In Degrees Fahr.

Highest	68.0, 24th, 3-30 P.
Lowest	8., 11 th, 6 A.
Mean hourly	32.86
Mean of means of max. and min.	33.1
Mean sensible (wet bulb)	24.6
Monthly range	60.0
Highest mean daily	53.3, 25th
Lowest mean daily	19.1, 6th
Mean maximum	41.4
Mean minimum	24.9
Mean daily range	16.5
Greatest daily range	42.0, 24th
Least daily range	5.0, 18th

Humidity.

Mean dew point	26.2
Mean force of vapor	.189
Mean relative humidity	80.2

Precipitation. In inches.

Total precipitation, in inches	1.17
Number of days on which .01 inch or more rain fell	7
Total snow in inches	12¼
Days of sleighing	3

Wind.

Total movement	6613m
Greatest daily movement	391m, 5th
Least daily movement	76m, 12, 30th
Mean daily movement	213m
Mean hourly velocity	8.9m

Maximum pressure per square foot, 13.0 lbs = 51m per hour, 3rd. 1 A., W.

Maximum velocity for 5 minutes, 30m per hour, 27th, 12 P., N.W.

Prevailing direction, West Northwest.

Summary.

Northwest	16 per cent
Southwest	20 " "
West Northwest	26 " "
Other directions	38 " "

Weather.

Mean cloudiness observed	52 per cent
Total cloudiness recorded by the Sun Thermometer	157 hours = 42 per cent
Number of clear days	11
Number of fair days	12
Number of cloudy days	8

Bright Sunshine.

Number hours recorded. 214 = 58 per cent.

Rain. 12th, 14th, 18th, 22nd, 27th. 30th.

Snow, 1st, 2nd, 4th, 7th, 9th, 10th. 15th, 18th, 20th, 22nd, 30th, 31st.

Gales. 43m, 1st W.N.W.; 38m, 2nd, W. N.W.; 51m, 3rd, W.; 44m, 4th S.; 43m, 5th, W.N.W.: 35m, 6th, N. W.; 35m, 7th, S.S.W.: 36m, 15th, N.W.; 35m. 18th, N.E.; 35m, 24th, S.S.W.; 45m, 27th, N.W.: 38m, 28th, W.; 40m, 31st, W. N.W.

DAILY SUMMARY.

Day.	Barometer Reduced to Sea Level.			Temperature. Ground Shelter.							No. Hours of Bright Sunshine.
	Maximum	Minimum.	Mean. Semi-daily	Maximum	Time.	Minimum.	Time.	Mean of Max. and Min.	Mean Hourly Draper.	Mean Sensible Wet Bulb.	
1	29.90	29.64	29.758	39.0	12 M	26.5	12 P	32.7	31.9	28.0	8.5
2	29.90	29.72	29.832	38.0	12:30 P	20 0	7 A	29.0	28.9	25 2	10.5
3	30.11	29.72	29.970	25 0	2 P	16.5	12 P	20.7	21.8	17.7	8.5
4	30.16	29.72	29.939	36.5	2:30 P	10.5	7 A	23.5	24.8	21.8	9.3
5	30.22	29.73	30 086	27.0	2 P	17.0	12 P	22.0	21.9	18.0	10.2
6	30.48	30.22	30.425	29.0	4 P	10.5	6:30 A	19.7	19.1	15.8	10.5
7	30.47	29.98	30.180	36.0	1:30 P	11.0	3 A	23.5	25.3	25.0	3.5
8	30.39	30.06	30.304	37.0	2:30 P	24 0	12 P	30.5	30.0	26.8	10.6
9	30.39	29.89	30.138	26.0	4 P	19.0	12 P	22.5	22.8	23.0	1 3
10	30.25	29.91	30.169	38 5	3:30 P	16.5	12 P	27.5	24.2	22.7	10.0
11	30.28	29.99	30.166	37.5	1 P	8.0	6 A	22.7	24.6	23 0	7.5
12	30.05	29.85	29.937	52.0	4 P	31.5	12 P	41.7	37 5	35.0	8.0
13	30.19	30.05	30.141	59 0	2:30 P	26 0	6 A	42.5	41.2	36.5	9.9
14	30.08	29.85	29.932	42.0	3 P	35.0	7 A	38.5	37.4	34.7	1.5
15	29.98	29.88	29.930	38.0	12 M	30 0	12 P	34.0	35.0	31.0	6.2
16	30 04	29.91	29.896	36.5	3:30 P	26.5	6:30 A	31.5	31.7	29.5	7.5
17	29.96	29.90	29 952	48.0	3 P	29 0	6 A	38.5	37 0	32.3	9 8
18	29.92	29.28	29.486	36.0	0 A	31.0	7:30 A	33 5	34.4	32.5	0.0
19	29.66	29.34	29.560	36.5	3 P	29.5	6 A	33.0	32 4	29.7	10.2
20	29.74	29.58	29.690	39.5	2:30 P	27.5	6 A	33.5	32.1	30.0	8.5
21	29.81	29 72	29.785	42.5	4:30 P	28 0	6:30 A	35.2	34 2	32.0	9.6
22	29.70	29.44	29.540	35.0	11 A	29.5	1 A	32.2	33.3	33.0	0.0
23	29.98	29.56	29.901	45.0	4:30 P	29.0	6:30 A	37.0	35 8	30.5	11.5
24	29.97	29.61	29.732	68.0	3:30 P	26 0	4:30 A	47.0	47.5	43.3	8.5
25	29.76	29.62	29 698	65.5	3 P	43 0	7 A	54.2	53.3	46.0	3.6
26	29.76	29.49	29.609	63.0	3 P	36.0	6:30 A	49.5	50.1	45.0	10.0
27	29.71	29.20	29.374	49 0	0 A	25.0	12 P	37.0	39.1	74.5	0.8
28	30.00	29.71	29.884	39 0	3 P	23.0	6 A	31.0	30.7	27.2	5 2
29	30.05	29.86	26.976	46.0	3 P	26 0	5 A	36.0	35.2	32.5	7.3
30	29.86	29.44	29.616	36.0	0 A	30.5	12 P	33.2	33.3	31 0	0.0
31	29.90	29.44	29.682	38 0	3 P	29.5	6 A	33.7	32.0	29.5	5.1

DAILY SUMMARY.

	Humidity.			Wind.					Precipitation.			
Day.	Mean Dew Point.	Mean Force vapor.	Mean Relative Humidity	Prevailing Direction.	Total Movement in Miles.	Maximum Pressure Per Square Ft	Miles per Hour.	Time.	Beginning.	Ending.	Total in Inches.	
											Rain.**	Snow.
1	24.0	.191	81.0	W.N.W.	232	9.0	43	5 P	1 A	3 A	T	T
2	21.5	.144	82.5	W.S.W.	259	7.0	38	5 P	11:30 P	12 P	T	T
3	13.0	.107	77.5	W.N.W.	338	13.0	51	1 A				
4	15.5	.183	73.5	S.W.	304	9.5	44	5 P	9 A	12 M	T	T
5	14.0	.106	81.5	W.N.W.	391	9.0	43	11 A				
6	8.0	.101	66.5	N.W.	214	6.0	35	12 M				
7	22.5	.146	88.6	S.W.	171	6.0	35	2 P	12 M	8 P	.03	½
8	24 5	.152	89.0	W.N.W.	321	5.0	32	3 A				
9	22.0	.125	96.5	N.E.	92	0.0	—	—	9 A	12 P	.60	8
10	19.0	.130	81.0	N.	214	1.5	18	8 A	0 A	2 A	.03	½
11	20.0	.140	84 0	S.E.	102	1.5	18	3 P				
12	33.5	.211	94.0	N.W.	76	0.0	—	—	7 A	9 A	T	
13	33.0	.237	84.0	S.W.	87	1.0	14	5 P				
14	32.5	.214	87.0	W.	117	4.0	28	7 P	4 A	12 M	.12	
15	25.5	.195	71.5	N.W.	316	6.5	36	6 P	9 A	10 A	T	T
16	26.0	.177	79.5	N.W.	203	2.0	20	1 A				
17	28.0	.204	76.5	N.	164	1.0	14	12 M				
18	32.5	.182	100.0	N.N.E.	211	6.0	35	11 A	6 A	10 P	.34	3¼
19	26.0	.178	79.5	W.	299	5.5	33	4 A				
20	27.5	.181	84.5	W.	305	5.5	33	5 P	2 P	4 P	T	T
21	27.5	.198	76.5	W.N.W.	216	3.5	26	10 A				
22	30.0	.199	86 0	S.W.	133	1.5	17	11 A	10 A	9 P	.03	T
23	24.0	.192	71.0	N.W.	188	2.0	20	7 A				
24	38 5	.323	78.5	S.S.W.	187	6.0	35	1 P				
25	44 0	.332	87.5	S.E.	105	0.0	—	—				
26	42.0	.342	82.5	S.W.	91	2.0	20	7 P				
27	35.5	248	91.5	W.	291	10.0	45	5 P	8 A	8.30 A	T	
28	20.5	167	70.0	W.N.W.	362	7.0	38	1 P				
29	29.5	.198	87.0	S.W.	180	3 0	24	0 A				
30	27.0	.189	81.5	W.N.W.	76	0.0	—	—	8:30 P	11:30 P	.02	T
31	25.5	.175	82.0	W.N.W.	368	8.0	40	6 P	1 P	9 P	T	T

** Rain or melted snow at base of tower.

* Included in following day.

REMARKS

The weather for the month was generally seasonable. In as much as there had been no accumulation of snow during the winter, the spring freshets due to melting snow were lacking. The precipitation during the month was 1. 17 inches which is only 30 percent of the normal for this station. The snowfall was 12. 25 inches which happens to be equal to the total snowfall for the winter up to March 1st.

The temperature was higher than normal in all respects. The maximun was 5.8 degrees higher than normal; the minimum, 2.3 degrees higher than normal; and the mean 1.2 degrees higher than the average temperature for March.

The total wind movement was 6613 miles which is 17 percent more than normal and more than usual was from the north west quadrant. The barometric pressure was slightly lower than normal and showed less than the normal fluctuation.

Slightly less cloudiness than normal was recorded. There were 11 clear days, 12 fair days. and 8 cloudy days. The total hours of bright sunshine was 214 which is 7 percent higher than normal. The relative humidity was 80.2 percent which is 5.6 percent higher than normal.

C. I. GUNNESS, Meteorologist

H. BAUMGARTNER, Observer.

BULLETIN No. 472. APRIL, 1928

Meteorological Observations
AT THE
MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION.

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 51 ft. Above sea level, 273.5 ft.
Height of Wind Instruments 72 ft. Time used, 75th Mer.

MONTHLY SUMMARY.

Pressure. In inches.

Maximum reduced to freezing,	30.16, 3rd, 5 A
Minimum reduced to freezing,	29.07, 19th, 3 P.
Reduced maximum reading,	30.47, 3rd, 5 A.
Reduced minimum reading,	29.36, 19th, 3 P.
Mean semi-daily reduced	29.98
Monthly range	1.09

Air Temperature. In Degrees Fahr.

Highest	82.5, 5th, 3 P.
Lowest	20,5, 2d, 6 A.
Mean hourly	42 6
Mean of means of max. and min.	43.3
Mean sensible (wet bulb)	38.5
Monthly range	62.0
Highest mean daily	61.2, 6th
Lowest mean daily	32.9, 1st
Mean maximum	53.5
Mean minimum	33.1
Greatest daily range	42.0, 5th
Least daily range	4.5, 22nd

Humidity.

Mean dew point	35.8
Mean force of vapor	.280
Mean relative humidity	76.8

Precipitation. In inches.

Total precipitation, in inches	1.99
Number of days on which .01 inch or more rain fell	11
Total snow in inches	2½
Days of sleighing	None

Wind.

Total movement	6770m
Greatest daily movement	398m, 9th
Least daily movement	94m, 14th
Mean daily movement	226m
Mean hourly velocity	9.4m

Maximum pressure per square foot, 17.5 lbs = 59m per hour, 9th. 10 A., W.

Maximum velocity for 5 minutes, 33m per hour, 8th, 7A.

Prevailing direction, Southwest.

Summary.

Northwest	23 per cent
West	16 " "
Southwest	16 " "
South	13 " "
West Northwest	13 " "
North Northeast	13 " "
Other directions	6 " "

Weather.

Mean cloudiness observed	50 per cent
Total cloudiness recorded by the Sun Thermometer . . 166 hours =	42 per cent
Number of clear days	8
Number of fair days	15
Number of cloudy days	7

Bright Sunshine.

Number hours recorded. 236 = 58 per cent.

Rain, 3rd, 8th, 11th, 12th, 14th, 19th. 21st, 22nd, 23rd, 24th, 25th, 27th, 28th, 29th 30th.

Thunder and Lighning, 19th, 30th.

Gales, 36m, 3rd, S S.W.; 37m, 6th, S.; 39m, 7th, S.S.W.; 45m, 8th, N.W.; 59m, 9th, W.: 37m, 11th, N.N.E.; 42m, 13th W. N.W.; 37m, 15th W.N.W.; 40m, 17th. WN.W.; 45m, 19th, N.W.; 41m, 24th, W.; 43m, 25th, W.: 37m, 29th, W.S.W.

Snow, 11th, 12th, 22nd, 23rd, 28th.

DAILY SUMMARY.

Day.	Barometer Reduced to Sea Level.			Temperature. Ground Shelter.							No. Hours of Bright Sunshine.
	Maximum	Minimum.	Mean. Semi-daily	Maximum	Time.	Minimum.	Time.	Mean of Max. and Min.	Mean Hourly Draper.	Mean Sensible Wet Bulb.	
1	30.23	29.90	30 076	39.0	2 P	27.0	7:30 A	33.0	32.9	29.5	7.1
2	30.46	30.23	30.405	50.5	3:30 P	20.5	6 A	35.5	35.6	31.0	11.8
3	30.47	30.30	30.408	52.5	1:30 P	28.5	6 A	40.5	40.4	36.5	8.3
4	30.36	30.12	30.296	73.5	3 P	34.0	5:30 A	53.7	52.5	47.8	10.0
5	30.24	30.04	30.139	82.5	3 P	40.5	7 A	61.5	58.1	50.0	9.2
6	30.09	29.94	30.022	79.0	2:30 P	45.0	6:30 A	62.0	61.2	54.0	11.3
7	30.02	29.81	29.963	74.0	2 P	51.0	4 A	62.5	60.4	57.3	8.0
8	29.97	29 75	29.823	63.5	3 P	54.0	7 A	58.8	55.5	47.5	11.0
9	30.16	29.96	30.064	40.0	3 P	32.5	12 P	39 3	38.0	33.5	10 3
10	30.21	30.09	30.165	49.5	4:30 P	27.0	6 A	38.3	36.6	32 0	10.3
11	30.16	29.70	29.982	47.0	1 P	28.0	4 A	37.5	37.9	35.5	8.8
12	29 71	29.52	29.548	55.0	4 P	32.0	5 A	43.5	41.5	37.2	7.5
13	30.05	29.71	29.908	58.5	2 P	39.0	12 P	48.7	47 2	39.0	12.0
14	30.04	29.55	29.795	45.0	2:30 P	29.5	6 A	37.3	3.90	38.2	0.0
15	29.98	29.56	29 854	43.0	0 A	28.0	12 P	35.5	37.1	31.5	8.7
16	30.07	29.96	30.054	44.0	3 P	24.5	6 A	34.3	33.6	28.0	12 3
17	30.03	29.96	29.990	45.5	3 P	27.0	6 A	36.3	35.6	30.5	12.0
18	30.13	29.93	30.050	57.0	4 P	26.5	5:30 A	41.7	42.6	35.8	12.3
19	29.93	29.36	29.595	70.0	2:30 P	38 0	12 P	54.0	49.9	42.8	7.0
20	30.27	29.80	30.080	49.0	4 P	30.5	6 A	39.7	38.3	33.5	12.2
21	30.41	30.20	30.330	51.0	2 P	24.5	6 A	37.7	38.8	35 5	9.2
22	30.20	29.84	29 988	37.5	3 P	33.0	0 A	35.3	35.5	35.0	0.0
23	29.85	29.70	29.782	42.5	1 P	33.0	12 P	37.7	37.8	37.0	0.7
24	29.70	29.50	29.562	50.0	6 P	32.0	3 A	41.0	39.7	37.2	4.7
25	29.86	29.63	29.743	45.0	3:30 P	35.0	6 A	40.0	39 3	38.8	7.6
26	30.12	29.85	29.994	51.0	5 P	37.5	0 A	44.3	43.0	39.2	11.0
27	30.14	29.98	30.070	52.5	4 P	28.0	5:30 A	40.3	42.5	40.5	9 2
28	29.98	29.40	29.521	39.0	0 A	33.0	7 A	36.0	37.1	35.5	0.0
29	29.64	29.37	29.494	46.0	5 P	38 0	0 A	42.0	41.6	39.2	0.9
30	29.75	29.60	29.742	65.0	3 P	35.0	5 A	50.0	48.7	45 0	2.3

DAILY SUMMARY.

Day.	Humidity.			Wind.					Precipitation.			
	Mean Dew Point.	Mean Force vapor.	Mean Relative Humidity	Prevailing Direction.	Total Movement in Miles.	Maximum Pressure Per Square Ft	Miles per Hour.	Time.	Beginning.	Ending.	Total in Inches. Rain.**	Total in Inches. Snow.
1	26.0	.354	79.5	N.W.	225	3.0	24	1 A				
2	28.0	.196	81.5	W.	99	1.0	14	8 A				
3	32.0	.239	77.0	S.	264	6.5	36	2 P	6 P	7 P	.02	
4	44.5	.398	81.0	S.	96	2.0	20	7 P				
5	97.0	.450	78.0	S.	127	5.0	32	6 P				
6	51.0	.476	82.0	S.	225	7.0	37	6 P				
7	54.0	.514	86.0	S.S.W.	279	7.0	37	2 P				
8	40.5	.406	65.5	S.W.	369	10.0	45	8 P	4 A	6 A	.02	
9	26.5	.226	65.5	W.N.W.	398	17.5	59	10 A				
10	26.0	208	68.0	N. W.	149	3.0	24	2 A				
11	32.0	.229	79.0	N.N.E	214	7.0	37	10 P	10 P	12 P	.29	½
12	31.0	.265	71.5	N.W.	231	2.0	20	2 P	0 A	3 A	.38	¾
13	30.5	.296	58.5	W.N W.	296	9.0	42	2 P				
14	35.5	.247	83.5	W.	94	3.0	24	1 P	2:30 P	11 P	.03	
15	27.0	.185	76.5	W.N.W.	323	7.0	37	4 P				
16	20.0	.180	60.5	N.W.	291	4.0	28	11 A				
17	22.0	.200	60.5	N.W.	433	8.0	40	4 P				
18	26.5	.275	54.0	W.	217	5.0	32	3 P				
19	39.0	.314	78.0	S.W.	328	10.0	45	8 P	6 A	4 P	T	
20	29.0	.214	74.0	N.W.	360	4.5	30	7 A				
21	31.5	.228	80.5	S.W	120	5.0	32	7 P	8 P	12 P	T	T
22	35.0	.204	100.0	N.N.E.	108	0.0	—	—	0 A	12 P	.52	¾
23	36.0	.227	93.5	N.N.E.	148	0.0	—	—	2 P	12 P	.07	½
24	33.5	247	81.0	N.W.	236	8.5	41	5 P	0 A	8 P	.17	
25	36.5	.248	88.0	W.	164	9.5	43	8 P	8 P	10 P	T	
26	34.5	277	72.0	W.N.W.	275	5.0	32	8 A				
27	36.0	.289	73.5	W.	117	3.0	—	1 P	10 P	12 P	.04	
28	34.0	.216	91.0	N.N.E.	210	4.5	30	10 A	0 A	12 P	.40	T
29	35.5	.263	80.5	S.W.	197	7.0	37	10 P	0 A	12 P	T	
30	43.0	.326	88.5	S.W.	177	9.0	42	5 P	2 A	7 P	.05	

** Rain or melted snow at base of tower. * Included in following day.

REMARKS

The weather during the month was abnormal in many respects. The barometer was marked by many sudden changes but the mean reading of 29.98, as well as the monthly range of 1.09, were normal. Many gales were recorded and the total wind movement of 6770 miles was well above the average for April. Most of the wind was from the west the prevailing direction being recorded as southwest.

Rain fell on fifteen days during the month, but the total precipitation was only 66 per cent of the normal. Snow fell on six days; the total snowfall being two and one-half inches. The hours of bright sunshine was 58 per cent of the possible amount which is 3 per cent above normal.

The mean hourly temperature was 3.7 less than normal. During the first week of the month the temperature was very high being 7 degrees higher than normal. During the last two weeks, however, the temperature was about 9 degrees less than normal. The maximum temperature was 3 degrees higher than normal and the minimum 1 degree lower than normal.

C. I. GUNNESS, Meteorologist

H. BAUMGARTNER, Observer.

BULLETIN No. 473. MAY, 1928

Meteorological Observations
AT THE
MASSACHUSETTS
AGRICULTURAL EXPERIMENT
STATION.

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 51 ft. Above sea level, 273.5 ft.
Height of Wind Instruments 72 ft. Time used, 75th Mer.

MONTHLY SUMMARY.

Pressure. In inches.

Maximum reduced to freezing	30.08, 14th, 8 A.
Minimum reduced to freezing	29.20, 26th, 1 P.
Reduced maximum reading	30.38, 14th, 8 A.
Reduced minimum reading	29.50, 26th, 1 P.
Mean semi-daily reduced	29.92
Monthly range	.88

Air Temperature. In Degrees Fahr.

Highest	80.5, 17th, 2 P
Lowest	31.0, 14th, 5-30 A
Mean hourly	55.0
Mean of means of max. and min.	55.1
Mean sensible (wet bulb)	50.9
Monthly range	49.5
Highest mean daily	62.3, 4th
Lowest mean daily	46.2, 13th
Mean maximum	66.1
Mean minimum	44.1
Greatest daily range	47.0, 10th
Least daily range	5.5, 23rd

Humidity.

Mean dew point	46.9
Mean force of vapor	.433
Mean relative humidity	77.1

Precipitation. In inches.

Total precipitation, in inches	3.25
Number of days on which .01 inch or more rain fell	9

Wind.

Total movement	3716m
Greatest daily movement	287m, 12th
Least daily movement	32m, 28th
Mean daily movement	120m
Mean hourly velocity	5.0m

Maximum pressure per square foot, 11.0 lbs = 47m per hour, 12th. 2 P., N.W.

Maximum velocity for 5 minutes, 27m per hour, 12th, 2 P.

Prevailing direction, Northwest.

Summary.

Northwest	13	per cent
South Southeast	13	" "
South	13	" "
West	10	" "
North Northeast	10	" "
North	7	" "
Northeast	7	" "
West Northwest	7	" "
Other directions	20	" "

Weather.

Mean cloudiness observed	54 per cent
Total cloudiness recorded by the Sun Thermometer	226 hours = 50 per cent
Number of clear days	10
Number of fair days	8
Number of cloudy days	13

Bright Sunshine.

Number hours recorded. 227 = 50 per cent.

Rain, 11th, 18th, 19th, 20th, 23rd, 25th, 26th, 27th, 28th, 29th, 30th.

Thunder and Lighning, 28th, 30th.

Frosts, 10th, 14th.

Gales, 47m, 12th, N.W.: 35m, 13th, N.N.W.

DAILY SUMMARY.

Day.	Barometer Reduced to Sea Level.			Temperature. Ground Shelter.							No. Hours of Bright Sunshine
	Maximum	Minimum.	Mean. Semi-daily	Maximum	Time.	Minimum.	Time.	Mean of Max. and Min.	Mean Hourly Draper.	Mean Sensible Wet Bulb.	
1	29.83	29.71	29.768	69.5	4 P	45.0	5 A	57.3	55.5	49.5	7.9
2	30.07	29.83	29.961	62.0	4:30 P	45.0	6 A	53.5	52.5	49.0	10.5
3	30.17	30.07	30.134	70.5	3 P	37.0	3:30 A	53.8	56.5	50.8	12.2
4	30.13	29.78	30.064	76.0	6 P	52.0	5 A	64.0	62.3	61.0	10.0
5	30.10	29.92	30.028	76.0	3:30 P	48.0	6 A	62.0	60.2	53.8	10.7
6	30.19	29.98	30.124	67.0	3 P	47.0	7 A	57.0	56.0	48.0	11.0
7	30.22	30.09	30.163	61.0	4 P	41.0	6 A	51.0	50.4	43.0	11.0
8	30.16	30.01	30.093	65.0	4 P	36.0	5:30 A	50.5	52.3	45.0	13.3
9	30.01	29.81	29.888	64.0	3 P	37.0	5 A	50.5	50.0	44.8	8.3
10	29.86	29.76	29.820	80.0	4 P	33.0	5:30 A	56.5	58.3	50.2	12.5
11	29.78	29.74	29.772	59.5	1 P	48.5	5 A	54.0	53.8	49.2	0.4
12	30.13	29.76	29.984	58.5	3 P	39.0	4 A	48.8	49.3	43.5	12.3
13	30.29	30.13	30.196	57.0	1 P	33.5	6 A	45.2	46.2	40.0	11.5
14	30.38	30.28	30.334	65.0	3:30 P	31.0	5:30 A	48.0	50.4	45.2	13.0
15	30.32	30.13	30.224	67.0	3 P	32.5	5 A	49.8	53.5	47.5	11.5
16	30.20	30.12	30.172	77.0	5 P	40.0	6 A	58.5	59.1	53.5	13.3
17	30.21	30.01	30.122	80.5	2 P	41.0	5:30 A	60.8	61.0	53.8	12.0
18	30.03	30.00	30.020	60.0	2 P	54.0	5 A	57.0	57.4	56.2	0.3
19	30.02	29.91	29.972	59.0	1 P	52.5	12 P	55.7	56.3	55.8	0.0
20	29.91	29.73	29.773	59.0	4 P	50.0	6 A	54.5	52.7	52.2	0.0
21	29.83	29.73	29.788	71.0	4:30 P	53.0	4 A	62.0	59.8	57.0	1.3
22	29.87	29.76	29.825	71.0	3 P	53.0	4:30 A	62.0	59.2	54.0	2.7
23	29.83	29.77	29.814	53.5	4 P	48.0	8 A	50.7	50.2	48.2	0.3
24	29.83	29.66	29.726	57.0	1 P	45.0	5 A	51.0	50.7	48.5	4.3
25	29.66	29.57	29.632	64.0	6 P	43.0	4:30 A	53.5	53.6	51.2	5.0
26	29.65	29.50	29.618	59.0	6 P	43.5	5:30 A	51.3	50.8	50.5	1.3
27	29.75	29.65	29.731	66.5	1 P	43.0	4 A	54.7	54.9	55.0	2.8
28	29.70	29.61	29.606	67.0	2 P	54.0	2 A	60.5	58.6	57.0	3.1
29	29.68	29.61	29.660	69.0	3:30 P	53.5	6 A	61.3	59.3	57.0	8.8
30	29.79	29.65	29.718	68.0	2 P	45.0	5 A	56.5	56.1	53.3	5.6
31	29.76	29.68	29.731	70.5	2:30 P	43.0	5:30 A	56.7	58.7	53.5	10.5

DAILY SUMMARY.

Day.	Humidity.			Wind.					Precipitation.			
	Mean Dew Point.	Mean Force vapor.	Mean Relative Humidity	Prevailing Direction.	Total Movement in Miles.	Maximum Pressure Per Square Ft	Miles per Hour.	Time.	Beginning.	Ending.	Total in Inches.	
											Rain.**	Snow.
1	48.0	.387	88.0	S.	149	2.2	22	7 P				
2	43.5	.420	67.0	W.	139	3.0	25	7 P				
3	46.0	.456	70.0	N.N.W.	70	2.0	20	3 P				
4	52.5	.552	76.0	S.S.E.	85	1.0	14	3 P				
5	51.5	.456	85.0	S.S.E.	150	2.5	22	7 P				
6	43.0	.426	66.0	N.W.	204	2.5	22	2 P				
7	35.5	.345	61.5	N.	278	4.0	28	4 P				
8	40.5	.406	62.5	E.	153	0.0	—	—				
9	39.0	.358	67.5	N.E.	106	0.0	—	—				
10	42.0	.498	56.0	W.	71	1.5	18	11 P				
11	45.0	.410	74.0	S.	98	1.0	14	6 P	11 A	4 P	T	
12	36.0	.358	60.0	N.W.	287	11.0	47	2 P				
13	31.0	.315	56.0	N.N.W.	243	6.0	35	7 P				
14	35.5	.405	52.0	N.N.W.	180	5.0	32	7 P				
15	40.5	.426	60.5	W.	61	0.5	10	4 P				
16	48.0	.511	66.0	N.W.	73	0.5	10	1 P				
17	49.0	.512	70.5	S.S.W.	113	2.0	20	4 P				
18	55.5	.474	93.0	S.S.E.	73	0.5	10	11 P	10 A	12 P	.27	
19	55.0	.457	95.5	S.S.E.	102	1.5	18	5 P	0 A	8 P	.29	
20	51.5	.397	98.5	N.N.E.	111	0.0	—	—	3 A	4 P	.61	
21	55.5	.496	90.0	N.	98	0.0	—	—				
22	52.0	.465	82.5	E.S.E.	72	0.5	10	7 P				
23	47.0	.349	93.5	N.E.	81	0.0	—	—	1:30 A	10:30 A	.63	
24	46.0	.373	83.5	E.N.E.	122	0.5	10	3 P				
25	48.5	.430	80.5	W.S.W.	95	2.5	22	11 P	3 A	4 A	T	
26	48.5	393	89.0	S.W.	102	0.0	—	—	10 A	4 P	.27	
27	54.5	.440	97.0	S.	75	1.5	18	3 P	3 P	12 P	.13	
28	56.5	.473	95.5	S.	32	0.0	—	—	0 A	8 P	.50	
29	57.0	.487	97.0	W.N.W.	97	1.0	14	6 P	12:30 A	2 A	.14	
30	51.5	.437	87.0	N.W.	77	5.0	32	6 P	5:30 P	7 P	.41	
31	49.0	.501	70.5	W.N.W.	119	3.0	25	3 P				

** Rain or melted snow at base of tower.

* Included in following day.

REMARKS

The weather during the month was cold and cloudy giving a very backward season. The mean hourly temperature was 55 degrees. This is 2.6 less than the normal. No such low mean temperature was obtained for May at this station from 1889 until 1917. In May 1917 the mean temperature was 49.3. Since then other low temperatures for May have been: 1920, 54.6; 1924, 53.5; 1925, 54 6; and 1927, 53.2 degrees. The minimum temperature was 31 degrees on the 14th. The normal minimum temperature for May is 30.5 degrees. The maximum temperature was 80.5 degrees on the 17th. The normal maximum is 87.0 degrees. However, during the last four years no high temperatures have been recorded during May. In 1924 the maximum was 74.0; in 1925; 80.0; in 1926, 80.0; and in 1927, 75 degrees.

In spite of the rainy weather, the total precipitation was slightly less than normal for May. The total rainfall was 3.25 inches, while the normal is 3.74 inches. The barometer was slightly lower than normal and showed the average range. The mean dew point was slightly lower than normal and the mean humidity of 77.1 per cent is 8.2 per cent higher than normal. The wind movement was less than normal and the month had relatively few windstorms. The prevailing direction was northwest.

Errata.—The record for precipitation for the month of April, reported in bulletin 472, is corrected to read as follows: 3rd .02; 8th .02; 11th .29; 12th .38; 14th .30; 21st .30; 22nd 1.25; 23rd .45; 24th .20; 27th .10; 28th .80; 30th .05. The total precipitation for the month was 4.16 inches.

C. I. GUNNESS, Meteorologist

H. BAUMGARTNER, Observer.

BULLETIN No. 474. JUNE, 1928

Meteorological Observations

AT THE

MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION.

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of Wind Instruments 67 ft. Time used, 75th Mer.

MONTHLY SUMMARY.

Pressure. In inches.

Maximum reduced to freezing,	29.84, 11th, 8 A.
Minimum reduced to freezing,	29.18, 6th, 4 P.
Reduced maximum reading,	30.13, 11th, 8 A.
Reduced minimum reading,	29.48, 6th, 4 P.
Mean semi-daily reduced	29.912
Monthly range	.65

Air Temperature. In Degrees Fahr.

Highest	85.0, 13th, 2.30 P. 85.0, 14th, 3 P.
Lowest	41.5, 11th, 5 A.
Mean hourly	63.1
Mean of means of max. and min.	63.6
Mean sensible (wet bulb)	59.4
Monthly range	43.5
Highest mean daily	72.8, 26th
Lowest mean daily	54.2, 6th
Mean maximum	73.0
Mean minimum	54.5
Greatest daily range	37.0, 8th
Least daily range	4.0, 5th, 20th

Humidity.

Mean dew point	57.1
Mean force of vapor	.574
Mean relative humidity	82.6

Precipitation. In inches.

Total precipitation, in inches	6.97
Number of days on which .01 inch or more rain fell	14

Wind.

Total movement	3632m
Greatest daily movement	228m, 30th
Least daily movement	33m, 8th
Mean daily movement	121m
Mean hourly velocity	5.0m

Maximum pressure per square foot, 5.5 lbs = 33m per hour, 2nd. 12 M.

Maximum velocity for 5 minutes, 18m per hour, 10th, 2 P.

Prevailing direction, South Southwest.

Summary.

South Southeast	17 per cent
Southwest	10 " "
South Southwest	10 " "
North Northeast	10 " "
West	10 " "
West Southwest	7 " "
West Northwest	7 " "
Southeast	7 " "
Other directions	22 " "

Weather.

Mean cloudiness observed	63 per cent
Total cloudiness recorded by the Sun Thermometer	286 hours = 63 per cent
Number of clear days	4
Number of fair days	7
Number of cloudy days	19

Bright Sunshine.

Number hours recorded. 171 = 37 per cent.

Rain, 2nd, 4th, 5th, 6th, 9th, 10th, 14th, 18th, 19th, 20th, 21st, 22nd, 24th, 26th, 27th, 28th, 29th, 30th.

Thunder and Lighning, 9th, 14th, 26th, 27th.

DAILY SUMMARY.

Day.	Barometer Reduced to Sea Level.			Temperature. Ground Shelter.							No. Hours of Bright Sunshine
	Maximum	Minimum.	Mean. Semi-daily	Maximum	Time.	Minimum.	Time.	Mean of Max. and Min.	Mean Hourly Draper.	Mean Sensible Wet Bulb.	
1	29.82	29.66	29.752	74.0	6 P	52.0	5 A	63.0	63.2	58.0	11.5
2	29.81	29.54	29.610	77.0	3 P	55.5	4:30 A	66.2	65.0	58.8	7.7
3	30.02	29.81	29.947	74.0	4 P	50.0	5 A	62.0	60.8	52.5	12.0
4	30.11	29.97	30.700	66.0	3 P	47.5	5:30 A	56.8	58.6	55 0	5.0
5	29 97	29.81	29.888	57.5	3 P	53.5	2 A	55.5	55.2	55 0	0.0
6	29.81	29.48	29.596	59 0	5 P	52.0	3 A	55.5	54.2	53.5	0.0
7	29.88	29.61	29.689	71.0	4:30 P	52.0	4 A	61.5	58.9	56 2	4 7
8	29.90	29.83	29.874	79.0	6 P	42 0	6 A	60.5	62.7	60 5	11.7
9	29.90	29.64	29.740	68.0	3:30 P	56 0	5 A	62.0	61.0	59.7	0.0
10	30.07	29.64	29.905	65.0	4:30 P	55 0	6 A	60.0	58.6	51.7	11.0
11	30.13	30.05	30.100	74.0	3 P	41.5	5 A	57 7	59.0	52.7	11.7
12	30.12	30.00	30.070	79 5	3 P	46.0	6 A	62.7	64.2	58.0	8.0
13	30.07	29.93	30.000	85.0	2:30 P	51.0	5 A	68.0	67.2	61.5	8.7
14	29.93	29.79	29.862	85 0	2 P	65.0	3 A	70 0	71.5	66.0	5 2
15	30.06	29.82	29.943	76.0	2:30 P	57.0	5 A	66.5	65.0	56.5	7.5
16	30.08	30.04	30 070	72.5	4 P	42.0	5:30 A	57.2	59.2	55.2	10 8
17	30.09	30.00	30.045	76.5	5:30 P	43.0	5:30 A	59.7	62.1	57.3	12.0
18	29.99	29.86	29.936	76.0	3 P	52 0	5:30 A	64.0	65.0	67 6	5.3
19	29.89	29.81	29.860	69.0	9 A	59.5	4 A	64.2	60.6	59 7	0.0
20	29.93	29.86	29.898	62.5	1 P	58.5	6 A	60.5	59.6	56 7	0.0
21	30.04	29.91	29.981	98 0	1:30 P	58.0	5 A	63.0	61.4	56 8	0.8
22	30.03	29.99	30.010	60.0	3:30 P	55.0	5 A	57.5	56.8	54 5	0.0
23	30.05	29.98	29.983	61.0	3 P	53.0	5 A	57.0	57.3	55.6	1.1
24	29.96	29.76	29.804	72.5	6 P	55.0	3 A	63.7	61.2	60.6	2.7
25	29.78	29.71	29 745	81.5	3:30 P	64.0	5 A	72.7	70.1	66.8	2.6
26	29.87	29.73	29.793	81.0	3 P	68.0	3 A	74.5	72 8	69.0	6 5
27	30.00	29.86	29.919	82.0	3 P	66.0	5 A	74.0	72.0	67.5	7.5
28	30.09	29.99	30.063	83.0	3 P	58 0	6 A	70 5	60.3	63.5	9.8
29	30.02	29 69	29 877	72.0	6 P	02 0	6 A	67.0	67.8	66 0	0.1
30	29.78	29.64	29.700	81.0	2 P	67.0	3 A	74.0	71.2	69.0	7.0

DAILY SUMMARY.

Day.	Humidity.			Wind.					Precipitation.			
	Mean Dew Point.	Mean Force vapor.	Mean Relative Humidity	Prevailing Direction.	Total Movement in Miles.	Maximum Pressure Per Square Ft	Miles per Hour.	Time.	Beginning.	Ending.	Total in Inches.	
											Rain.**	Snow.
1	53.0	.586	72.0	W.S.W.	208	5.0	32	12 M				
2	55.5	.572	80.0	W.	186	5.5	33	12 M	2 A	6 A	.53	
3	46.5	.522	60.0	W.N.W.	138	0.0	—	—				
4	52.0	.487	81.5	W.	42	0.0	—	—	5 P	12 P	.06	
5	54.5	.439	98 5	S.E.	44	0.0	—	—	0 A	12 P	1.15	
6	53.0	.426	94.0	E.S.E.	34	0.0	—	—	0 A	10 P	.43	
7	55.0	.526	82.5	W.	87	1.5	18	7 P				
8	58.7	.594	84.8	S.S.E.	33	0.0	—	—				
9	59.0	.531	93 0	S.S.E.	133	1.0	14	7 P	6 A	11 P	2.24	
10	47.5	464	70.5	E.	222	5.0	32	8 A				
11	48.0	.508	66.0	S.S.E.	112	1.5	18	4 P				
12	54.5	.591	73.0	S.W.	94	0.0	—	—				
13	60.0	.600	87.5	S.S.E.	114	2.5	23	4 P				
14	65 0	.698	88.0	S.S.W.	133	1.5	18	5 P	4:30 P	10 P	1.04	
15	51 0	.581	65.5	N.N.W.	194	2.5	23	10 A				
16	52.5	.501	79.0	W.N.W.	108	0.0	—	—				
17	53.5	.572	71.5	S S.E.	47	0.0	—	—				
18	61.5	.625	87.5	S.E.	112	1.5	18	12 P	10 P	12 P	.15	
19	59.0	.550	89.0	N.N.E.	108				0 A	1 P	.29	
20	55.5	.503	86.0	N.N.E.	207	2.5	23	3 P	9 A	10 A	.10	
21	55 0	.513	84.0	N.N.E.	143				7:30 P	8 P	T	
22	53.0	.458	88.0	E.N.E.	75				8 A	1 P	.04	
23	54.5	.471	87.5	S.	100	0.0	—	—				
24	60.5	.550	95.5	N.	75	0.0	—	—	0 A	12 P	.31	
25	66.5	.714	79.0	S.W.	88	1.5	18	7 P				
26	68.0	752	90.5	S.S.W.	177	4.0	29	6 P	3 P	4 P	T	
27	66.0	.742	86.0	W.S W.	144	1.5	18	6 P	3 A	6 A	.12	
28	61.0	.686	78.5	S S.W.	63	0.0	—	—	3 A	4 A	T	
29	65.0	.687	90 0	S.W.	183	4.0	29	7 P	10 A	8 P	.42	
30	68.5	764	90.5	S.S.W.	228	3.0	25	8 A	0 A	11 P	.09	

** Rain or melted snow at base of tower. * Included in following day.

REMARKS

The weather during the month was outstanding in the lack of sunshine, low average temperature and large amount of rainfall. The mean hourly temperature was 63.1 degrees, which is 1.9 degrees lower than the normal. The minimum temperature was 41.5 degrees on the 11th, which is 2.1 degrees higher than normal. The maximum temperature on the 13th, however, was 6.3 less than normal or 85 degrees. The range was 43.5 degrees, while the normal range for this station is 52 degrees This has been characteristic of the weather during the present spring showing less than normal range in temperature but a lack of high temperature during the day. The mean relative humidity was 82.6 percent which is 10 per cent higher than the normal. The total rainfall was 6.97 inches, and rain fell on 18 days. The normal rainfall for June is 3.86 inches.

The total wind movement was about normal and no gales were recorded. The prevailing direction of the wind was South Southwest. The bright sunshine recorded during the month was 171 hours which is 37 per cent of the possible sunshine during this month. This is 66 per cent of the normal sunshine for June.

N. B. The meteorological instruments were moved from their old location in South College to Stockbridge Hall on June 12. The altitude of the various instruments in their new location is indicated on the first page of this bulletin.

C. I. GUNNESS, Meteorologist

R. W. NASH, Observer.

BULLETIN No. 475. JULY, 1928

Meteorological Observations

AT THE

MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION.

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of Wind Instruments 67 ft. Time used, 75th Mer.

MONTHLY SUMMARY.

Pressure. In inches.

Maximum reduced to freezing,	29.96, 31st, 8 A.
Minimum reduced to freezing,	29.40, 28th, 6 P.
Reduced maximum reading,	30.24, 31st, 8 A.
Reduced minimum reading,	29.67, 28th, 6 P.
Mean semi-daily reduced	29.949
Monthly range	.57

Air Temperature. In Degrees Fahr.

Highest	93.0, 8th, 4-30 P.
Lowest	47.0, 31st, 5 A.
Mean hourly	71.5
Mean of means of max. and min.	70.3
Mean sensible (wet bulb)	66.8
Monthly range	46.0
Highest mean daily	77.5, 19th
Lowest mean daily	61.7, 30th
Mean maximum	82.4
Mean minimum	61.7
Greatest daily range	33.0, 8th, 31st
Least daily range	7.0, 27th

Humidity.

Mean dew point	64 8
Mean force of vapor	.761
Mean relative humidity	80.6

Precipitation. In inches.

Total precipitation, in inches	6.23
Number of days on which .01 inch or more rain fell	14

Wind.

Total movement	3545m
Greatest daily movement	294m, 29th
Least daily movement	37m, 2nd
Mean daily movement	114m
Mean hourly velocity	4.7m

Maximum pressure per square foot, 6.0 lbs = 35m per hour, 10th, 6 P.

Maximum velocity for 5 minutes, 27m per hour, 29th, 12:30 P.

Prevailing direction, South

Summary.

South Southeast	26	per cent
South Southwest	13	" "
West Northwest	13	" "
East Southeast	10	" "
Northwest	6	" "
North Northeast	6	" "
South	6	" "
West Southwest	6	" "
Other directions	14	" "

Weather.

Mean cloudiness observed	50 per cent
Total cloudiness recorded by the Sun Thermometer	213 hours = 46 per cent
Number of clear days	11
Number of fair days	5
Number of cloudy days	15

Bright Sunshine.

Number hours recorded. 249 = 54 per cent.

Rain, 1st, 2nd, 5th, 6th, 9th, 10th, 11th, 12th, 13th, 14th, 19th, 20th, 22nd, 23rd, 24th, 27th 28th.

Thunder and Lightning, 1st, 9th, 10th, 12th, 27th.

Gales, 35 or more miles per hour: 35m, 10th, SE.

DAILY SUMMARY.

Day.	Barometer Reduced to Sea Level.			Temperature. Ground Shelter.							No. Hours of Bright Sunshine.
	Maximum	Minimum.	Mean. Semi-daily	Maximum	Time.	Minimum.	Time.	Mean of Max. and Min.	Mean Hourly Draper.	Mean Sensible Wet Bulb.	
1	29.88	29.78	29.859	82.0	1:30 P	59.0	5 A	70.5	67.7	65.0	2.9
2	29.93	29.87	29.909	84.0	3 P	58.0	6 A	71.0	70.0	66.5	2.6
3	29.96	29.85	29.960	89.0	4 P	60.0	5 A	74.5	74.9	70.0	10.5
4	29.90	29.76	29.829	90.0	3:30 P	66.0	6 A	78.0	76.9	72.5	7.2
5	29.81	29.76	29.801	85.0	1:30 P	64.0	5:30 A	74.5	73.1	69.0	3.2
6	30.06	29.77	29.938	78.0	3:30 P	64.0	6 A	71.0	69.0	62.0	8.1
7	30.13	30.09	30.194	84.0	4:30 P	52.0	5 A	68.0	68.7	64.5	12.4
8	30.01	29.96	29.993	93.0	4:30 P	60.0	5 A	76.5	77.0	72.5	11.0
9	30.06	29.97	30.060	90.0	2 P	68.0	5:30 A	79.0	76.7	70.5	9.8
10	30.05	30.03	29.993	83.0	2 P	67.0	5:30 A	75.0	72.0	68.0	8.1
11	29.96	28.88	29.925	84.0	2 P	69.0	5:30 A	76.5	74.5	72.0	4.4
12	30.03	29.90	29.981	86.0	4:30 P	67.0	5 A	76.5	76.2	71.0	11.2
13	30.07	29.97	30.043	78.0	3:30 P	65.0	4 A	71.5	70.6	68.0	5.5
14	29.99	29.83	29.863	79.0	3 P	70.0	0 A	74.5	72.0	71.0	2.5
15	30.00	29.89	29.985	83.0	4 P	65.0	6 A	65.5	73.0	66.0	12.1
16	30.03	29.99	30.010	83.0	3:30 P	63.0	5 A	64.5	73.1	66.0	12.4
17	30.05	29.95	30.003	87.0	5 P	62.0	5 A	64.8	76.3	67.7	10.3
18	29.97	29.84	29.899	88.0	3 P	63.0	5:30 A	66.5	77.2	70.0	9.7
19	29.86	29.76	29.805	86.0	1:30 P	63.0	5 A	69.3	77.5	75.7	9.0
20	29.93	29.75	29.831	77.0	9 A	57.0	10 P	58.5	64.2	60.0	.6
21	30.07	29.99	30.038	81.0	4:30 P	53.0	5 A	67.0	68.5	61.5	7.8
22	30.00	29.73	29.872	72.0	3 P	60.0	3 A	61.0	65.0	64.5	0.0
23	29.86	29.71	29.782	80.0	2:30 P	66.0	5 A	73.0	72.0	69.5	9.3
24	29.96	29.84	29.928	83.0	5 P	64.0	6 A	73.5	72.3	68.0	10.5
25	29.96	29.89	29.929	84.0	4 P	61.0	5:30 A	72.5	73.0	68.5	12.0
26	30.03	29.93	29.983	82.0	5 P	60.0	6 A	71.0	70.9	63.7	10.8
27	29.99	29.82	29.906	72.0	12 M	65.0	5 A	68.5	67.9	66.0	0.0
28	29.83	29.67	29.730	84.0	4:30 P	65.0	0 A	74.5	72.2	67.7	7.5
29	30.19	29.82	30.033	74.0	5:30 P	61.0	5:30 A	67.5	66.1	58.0	13.0
30	30.21	30.14	30.187	74.0	3 P	49.0	6 A	61.5	61.7	57.7	12.3
31	30.24	30.09	30.171	80.0	3 P	47.0	5 A	63.5	64.8	59.0	12.5

DAILY SUMMARY.

	Humidity.			Wind.					Precipitation.			
											Total in Inches.	
Day.	Mean Dew Point.	Mean Force vapor.	Mean Relative Humidity	Prevailing Direction.	Total Movement in Miles.	Maximum Pressure Per Square Ft	Miles per Hour.	Time.	Beginning.	Ending.	Rain.**	Snow.
1	64.0	.653	92.5	N.N.W.	72	0.5	10	7 P	7 P	8 P	0.5	
2	65.0	.724	86.0	N.W.	37	0.0	—	—	5 A	6:30 A	0.1	
3	68.0	.842	82.0	S.	90	0.5	10	9 P				
4	70.5	.903	62.5	S.S.W.	155	1.5	18	6 P				
5	68.0	.771	88.0	S.S.E.	83	0.0	—	—	4:30 P	12 P	0.3	
6	59.5	.652	78.0	E.N.E.	214	2.0	20	8 P	0 A	5 A	0.18	
7	61.0	.747	72.0	S.S.W.	110	0.5	10	1:30 P				
8	70.5	.932	81.0	S.S.E.	80	0.0	—	—				
9	68.5	.849	82.0	E.S.E.	78	5.5	34	5 P	3:30 P	4 P	T	
10	67.5	.735	90.5	S.S.E.	151	6.0	35	6:30 P	4:30 P	6:30 P	0.23	
11	69.5	.837	86.5	S.S.E.	165	1.5	18	6 P	5 A	6 A	0.1	
12	69.5	.837	85.5	W.N.W.	99	0.0	—	—	3 P	4 P	T	
13	67.5	.710	94.0	E.S.E.	69	0.0	—	—	5 P	8 P	0.3	
14	70.5	.796	92.0	S.S.E.	224	4.0	28	2 P	0 A	1 P	1.02	
15	63.0	.791	72.0	S.S.W.	143	2.0	20	2 P				
16	63.0	.781	75.0	W.S.W.	179	3.0	25	1:30 P				
17	63.5	.899	65.5	E.S.E.	116	0.0	—	—				
18	67.0	.894	74.5	W.S.W.	110	0.5	10	1 P				
19	74.5	.988	86.0	S.S.E.	71	0.0	—	—	8 P	8:30 P	T	
20	60.5	.634	85.0	N.N.W.	107	0.0	—	—	8 A	4 P	0.63	
21	59.0	.646	78.0	S.	65	1.0	14	8 P				
22	63.5	.649	90.0	S.E.	101	0.0	—	—	11:30 A	12 P	0.60	
23	69.0	.771	90.5	W.N.W.	83	0.5	10	8 A	0 A	11:30 P	0.10	
24	66.0	.797	79.5	N.W.	48	0.0	—	—	1 P	2 P	0.02	
25	66.5	.813	80.0	W.N.W.	102	0.0	—	—				
26	60.0	.738	71.0	N.	78	1.0	14	8 A				
27	65.0	.677	92.5	S.S.E.	100	0.0	—	—	0:30 P	12 P	0.95	
28	66.5	.761	65.5	S.S.E.	83	1.0	14	2 P	0 A	11 A	1.20	
29	53.5	.612	66.5	W.N.W.	294	4.0	28	10 A				
30	55.0	.544	80.5	W.	121	1.0	14	3 P				
31	55.0	.605	74.0	S.S.W.	117	3.0	25	9 P				

** Rain or melted snow at base of tower. * Included in following day.

REMARKS

The weather during the month of July was marked with a large amount of cloudiness and a heavy rainfall. Rain fell on seventeen days, the total rainfall being 6.23 inches. A very heavy rain of 2.1 inches fell during the night of the 27th. The normal rainfall for July is 4.34 inches for this station. The total number of hours of bright sunshine was 249, while the normal is 260 hours.

The mean temperature was slightly higher than normal, being 71.5 degrees. The normal is 70.7. The maximum temperature recorded was 93 degrees on the 8th which is slightly less than the normal, which is 93.7 for July. The minimum temperature was 47 degrees, the normal minimum being 45.3 degrees. July was similar to the former months of this season in showing less than normal range in temperature. The relative humidity was 80.6 per cent, which is 7.3 per cent higher than normal.

The wind movement was slightly less than normal being 3545 miles. The normal wind movement for July is 3612 miles. No heavy winds were recorded. Thunder and lightning were observed on 5 days, but there were no heavy thunder storms.

The mean barometer was slightly lower than normal, and showed a range of .57 inches which is .13 inches less than normal.

C. I. GUNNESS, Meteorologist

R. W. NASH, Observer.

BULLETIN No. 476. AUGUST, 1928

Meteorological Observations
AT THE
MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION.

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of Wind Instruments 67 ft. Time used, 75th Mer.

MONTHLY SUMMARY.

Pressure. In inches.

Maximum reduced to freezing,	30.17, 27th, 8 A.
Minimum reduced to freezing,	28.96, 18th, 8 P.
Reduced maximum reading,	30.34, 27th, 8 A.
Reduced minimum reading,	29.66, 18th, 8 P.
Mean semi-daily reduced	30.031
Monthly range	.68

Air Temperature. In Degrees Fahr.

Highest	92.0, 3rd, 3-30 P., 4th, 1 P.
Lowest	52.0, 13th, 4-30 A.
Mean hourly	70.6
Mean of means of max. and min.	72.0
Mean sensible (wet bulb)	66.8
Monthly range	40.0
Highest mean daily	78.1, 29th
Lowest mean daily	60.0, 7th
Mean maximum	81.6
Mean minimum	62.8
Greatest daily range	35.0, 14th
Least daily range	5.0, 25th

Humidity.

Mean dew point	65.2
Mean force of vapor	.732
Mean relative humidity	86.3

Precipitation. In inches.

Total precipitation, in inches	8.40
Number of days on which .01 inch or more rain fell	14

Wind.

Total movement	3090m
Greatest daily movement	169m, 31st
Least daily movement	37m, 14th
Mean daily movement	99.7m
Mean hourly velocity	4.1m
Maximum pressure per square foot,	4.5 lbs = 30m per hour, 5th, 12 M.
Maximum velocity for 5 minutes,	30m per hour, 5th, 12 M.

Prevailing direction, South Southeast

Summary.

South Southeast	30	per cent
West Southwest	16	" "
North Northwest	13	" "
South Southwest	10	" "
North Northeast	6	" "
East Northeast	6	" "
Other directions	19	" "

Weather.

Mean cloudiness observed	60 per cent
Total cloudiness recorded by the Sun Thermometer	226 hours = 53 per cent
Number of clear days	7
Number of fair days	6
Number of cloudy days	18

Bright Sunshine.

Number hours recorded. 203 = 47 per cent.

Rain, 1st, 3rd, 4th, 5th, 6th, 7th, 10th, 17th, 18th, 22nd, 23rd, 25th, 26th, 28th, 30th

Thunder and Lightning, 3rd, 4th, 5th, 10th, 18th, 21st, 30th.

DAILY SUMMARY.

Day.	Barometer Reduced to Sea Level.			Temperature. Ground Shelter.							No. Hours of Bright Sunshine.
	Maximum	Minimum.	Mean. Semi-daily	Maximum	Time.	Minimum.	Time.	Mean of Max. and Min.	Mean Hourly Draper.	Mean Sensible Wet Bulb.	
1	30.08	29.98	30.003	74.0	5:30 P	62.0	3:30 A	68.0	67.0	66.5	1.1
2	30.05	29.97	29.999	89.0	5 P	63.0	4 A	76.0	75.0	68.7	8.3
3	29.99	29.86	29.951	92.0	3:30 P	67.0	5:30 A	79.5	75.8	71.7	8.8
4	29.94	29.86	29.891	92.0	1 P	67.0	5:30 A	79.5	75.9	73.0	7.3
5	30.05	29.88	29.950	90.0	12 M	71.0	6 A	80.5	72.7	74.0	6.1
6	30.26	30.04	30.190	73.0	4 P	58.0	6 A	65.5	60.5	59.0	0.0
7	30.26	30.10	30.146	64.0	6 P	58.0	3 A	61.0	60.0	60.2	0.0
8	30.09	29.93	29.986	78.0	5 P	60.0	3 A	69.0	66.8	65.5	6.0
9	29.94	29.88	29.908	87.0	5:30 P	69.0	1 A	78.0	76.6	71.2	11.7
10	29.92	29.83	29.876	87.0	3 P	61.0	5 A	74.0	72.0	70.5	8.6
11	29.99	29.79	29.866	83.0	3:30 P	68.0	0 A	75.5	71.4	64.2	5.6
12	30.11	30.02	30.086	74.0	3 P	54.0	5 A	64.0	62.8	56.2	10.3
13	30.22	30.08	30.113	84.0	5 P	52.0	4:30 A	68.0	67.6	60.2	12.0
14	30.18	30.11	30.160	93.0	4:30 P	58.0	5:30 A	75.5	74.8	69.7	12.0
15	30.20	30.09	30.161	92.0	3 P	62.0	5 A	77.0	76.3	69.5	11.1
16	30.13	30.01	30.079	90.0	3 P	61.0	5 A	75.5	74.9	71.7	11.8
17	30.03	29.79	29.923	84.0	3 P	66.0	11 P	75.0	72.4	67.2	7.3
18	29.79	29.66	29.704	82.0	2 P	66.0	1 A	74.0	73.7	72.0	5.7
19	29.92	29.68	29.795	79.0	3 P	66.0	5 A	72.5	71.8	67.0	11.1
20	30.05	29.96	30.042	80.0	5:30 P	55.0	6 A	67.5	67.5	62.5	12.1
21	30.10	30.03	30.070	78.0	3 P	60.0	0 A	69.0	67.5	61.7	7.5
22	30.16	30.05	30.113	67.0	9 A	60.0	5 A	63.5	64.4	63.2	0.0
23	30.25	30.18	30.210	72.0	1 P	61.0	6 A	66.5	66.3	63.5	3.0
24	30.19	30.10	30.156	75.0	3 P	62.0	6 A	68.5	68.5	65.0	4.3
25	30.21	30.11	30.169	70.0	6 P	65.0	6 A	67.5	67.4	66.0	0.0
26	30.28	30.18	30.237	73.0	4 P	66.0	3 A	69.5	69.6	67.7	0.0
27	30.34	30.21	30.285	82.0	2:30 P	66.0	6 A	74.0	72.8	69.0	6.5
28	30.21	29.98	30.087	79.0	5 P	68.0	6 A	73.5	72.7	71.0	1.0
29	29.99	29.93	29.976	91.0	4 P	70.0	6 A	80.5	78.1	74.5	10.3
30	29.96	29.75	29.856	91.0	1 P	65.0	4 A	78.0	75.8	70.5	5.7
31	30.07	29.86	29.984	76.0	2 P	59.0	12 P	67.5	69.0	58.5	7.8

DAILY SUMMARY.

Day.	Humidity.			Wind.					Precipitation.			
	Mean Dew Point.	Mean Force vapor.	Mean Relative Humidity	Prevailing Direction.	Total Movement in Miles.	Maximum Pressure Per Square Ft	Miles per Hour.	Time.	Beginning.	Ending.	Total in Inches.	
											Rain.**	Snow.
1	66.0	.703	89.0	S.S.E.	152	1.0	14	1 P	10:30A	3 P	.40	
2	66.5	.808	82.5	W.S.W.	90	0.0	—	—				
3	71.5	.841	91.0	S.W.	99	4.0	28	7 P	4:30 P	7 P	.25	
4	71.0	.890	85.5	S.E.	94	3.0	25	3 P	5 A	4:30 P	.29	
5	73.0	.928	89.0	S.S.E.	79	4.5	30	1 P	12 M	11 P	1.06	
6	57.5	.546	86.5	E.N.E.	123	2.0	20	4 A	10 P	12 P	.04	
7	59.5	.538	96.0	N.N.W.	67	0.0	—	—	0 A	10 A	.26	
8	64.5	.672	93.0	S.S.E.	73	0.0	—	—				
9	70.0	800	85.5	W.S.W.	83	0.0	—	—				
10	69.5	804	90.5	S.S.E.	56	0.0	—	—	6:30 P	12 P	.21	
11	62.0	.694	81.5	N.N.W.	110	0.0	—	—				
12	52.5	.542	72.5	N.N.W.	157	0.0	—	—				
13	56.5	.641	71.5	N.N.W.	114	0.0	—	—				
14	66.5	.801	82.5	W.S.W.	37	0.0	—	—				
15	68.0	.834	82.0	S.S.E.	40	0.0	—	—				
16	70.0	.883	86.0	S.S.E.	73	0.0	—	—				
17	65.5	.747	85.0	S.S.W.	129	2.0	20	8:30 A	5 P	12 P	.03	
18	71.5	.832	93.0	S.S.E.	77	0.0	—	—	0 A	1 P	.51	
19	64.5	.785	78.0	N.N.E.	117	0.0	—	—				
20	60.5	.638	82.5	N.N.E.	116	0.0	—	—				
21	59.5	.615	84.5	S.S.E.	134	2.5	23	3 P				
22	61.5	.628	88.0	W.S.W.	76	0.0	—	—	11 A	8 P	.20	
23	62.0	.627	91.0	E.N.E.	79	0.0	—	—	2 A	3 A	.04	
24	63.5	.673	88.0	S.S.E.	72	0.0	—	—				
25	65.5	.659	95.0	E.S.E.	101	0.0	—	—	6 A	12 P	2.23	
26	68.5	698	96.5	E.S.E.	134	0.0	—	—	0 A	1 P	2.22	
27	68.5	.758	90.5	S.S.W.	48	0.0	—	—				
28	68.5	.799	93.0	E.S.E.	149	1.5	18	5 P	7 A	7:15 A	T	
29	70.5	.878	83.5	W.S.W.	134	0.2	6	12 M				
30	70.5	765	95.0	S.S.W.	108	3.0	25	2 P	5 P	11 P	.66	
31	54.0	.616	67.5	W.N.W.	169	1.0	14	8 P				

** Rain or melted snow at base of tower. * Included in following day.

SUMMARY.

The weather during the month of August was similar to the preceding summer months in showing a high humidity and an extensive rainfall.

The total rainfall for the month was 8.4 inches. Of this amount, 4.45 inches fell during the storm of August 25th and 26th. A total of 4.3 inches fell in 24 hours. The barometer was relatively high before and during this storm; the wind being from the southeast. Comparing the rainfall for the present month with that of November, 1927, we find that the total during November was 8.64 inches of which 5.63 inches fell during the storm of November 2nd to 4th. The normal rainfall for August is 4.17 inches.

The relative humidity for the past month was 86.3 per cent as compared with a normal humidity of 76.8 per cent.

The mean hourly temperature was 70.6 degrees, whereas the normal for August is 67.9 degrees. The maximum temperature recorded was 92 degrees, the normal being 90.7 degrees. The lowest temperature for the month was 52 degrees; the normal is 42 degrees. The range was 40 degrees, while the normal range is 48.4 degrees. This is typical of the weather of the past spring and summer, a remarkably low range in temperature.

More than the usual amount of cloudiness was shown. Bright sunshine was recorded during 47 per cent of the possible time; the normal for August is 53.3 per cent.

Wind movement was slightly less than normal and no heavy winds were recorded.

C. I. GUNNESS, Meteorologist

R. W. NASH, Observer.

BULLETIN No. 477. SEPTEMBER, 1928

Meteorological Observations
AT THE
MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION.

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of Wind Instruments 67 ft. Time used, 75th Mer.

MONTHLY SUMMARY.

Pressure. In inches.

Maximum reduced to freezing,	30.10, 6th, 9A.
Minimum reduced to freezing,	29.41, 23rd, 2P.
Reduced maximum reading,	30.38, 6th, 9 A.
Reduced minimum reading,	29.68, 23rd, 2P.
Mean semi-daily reduced	30.058
Monthly range	.70

Air Temperature. In Degrees Fahr.

Highest	84.0, 13th, 2-30 P
Lowest	31.0, 25th, 7 A., 29th, 6 A.
Mean hourly	57.8
Mean of means of max. and min.	59.0
Mean sensible (wet bulb)	53.7
Monthly range	53.0
Highest mean daily	68.4, 11th
Lowest mean daily	45.8, 27th
Mean maximum	68.7
Mean minimum	48.8
Greatest daily range	34.0, 23rd
Least daily range	5.0, 12th

Humidity.

Mean dew point	51.7
Mean force of vapor	.470
Mean relative humidity	85.2

Precipitation. In inches.

Total precipitation, in inches	3.07
Number of days on which .01 inch or more rain fell	9

Wind.

Total movement	3744m
Greatest daily movement	282m, 20th
Least daily movement	40m, 8th
Mean daily movement	125 m
Mean hourly velocity	5.2m

Maximum pressure per square foot, 5.5 lbs = 33m per hour, 20th, 11P.

Maximum velocity for 5 minutes, 28m per hour, 26th, 9 A.

Prevailing direction, South Southwest

Summary.

Southeast	16	per cent
Northwest	16	" "
South	13	" "
Southwest	10	" "
South Southeast	10	" "
North	10	" "
Other directions	25	" "

Weather.

Mean cloudiness observed	52 per cent
Total cloudiness recorded by the Sun Thermometer . .	203 hours = 52 per cent
Number of clear days	2
Number of fair days	15
Number of cloudy days	13

Bright Sunshine.

Number hours recorded, 170 = 48 per cent.

Rain, 3rd, 4th, 7th, 13th, 17th, 18th, 19th, 20th, 23rd, 25th, 26th, 27th, 28th.

Thunder and Lightning, 13th, 17th.

Gales, none.

DAILY SUMMARY.

Day.	Barometer Reduced to Sea Level.			Temperature. Ground Shelter.							No. Hours of Bright Sunshine.
	Maximum	Minimum.	Mean. Semi-daily	Maximum	Time.	Minimum.	Time.	Mean of Max. and Min.	Mean Hourly Draper.	Mean Sensible Wet Bulb.	
1	30.18	30.10	30.165	71.0	4:30 P	48.0	6 A	[illegible]	60.0	52.7	11.5
2	30.17	30.06	30.110	75.0	2:30 P	42.0	6 A	[illegible]	[illegible]	51.7	9.5
3	30.06	29.74	29.820	63.0	6 P	56.0	6 A	[illegible]	[illegible]	59.0	0.2
4	30.16	29.84	30.010	75.0	2:30 P	59.0	3 A	67.0	64.6	60.0	9.0
5	30.37	30.33	30.325	70.0	3:30 P	49.0	6:30 A	59.5	58.0	55.0	9.0
6	30.38	30.28	30.330	63.0	4 P	50.0	5 A	56.5	56.0	55.7	0.0
7	30.28	30.15	30.225	74.0	4 P	49.0	6:30 A	61.5	60.3	56.5	8.0
8	30.15	30.06	30.112	79.0	4 P	52.0	6:30 A	65.5	61.0	57.5	9.5
9	30.19	30.02	30.078	78.0	3:30 P	47.0	6 P	62.5	61.8	60.0	10.2
10	30.33	30.20	30.270	73.0	3:30 P	44.0	6:30 A	58.5	59.0	54.7	9.2
11	30.22	30.01	30.065	82.0	3 P	61.0	7 A	71.5	68.4	67.2	4.7
12	30.17	30.04	30.114	62.0	4 P	57.0	12 P	59.5	59.2	58.0	0.0
13	30.05	29.77	29.890	84.0	2:30 P	57.0	0 A	70.5	67.0	65.7	3.0
14	30.17	29.83	30.032	72.0	2 P	59.0	6 A	65.5	63.2	59.0	10.0
15	30.21	30.13	30.181	65.0	1 P	56.0	6 A	60.5	59.3	56.0	0.7
16	30.13	30.02	30.067	77.0	4 P	59.0	0 A	68.0	66.0	63.5	10.0
17	29.96	29.87	29.983	79.0	3 P	64.0	7 A	71.5	68.0	64.0	6.8
18	30.15	29.98	30.104	67.0	3 P	55.0	7 A	61.0	58.6	53.5	7.2
19	30.27	30.15	30.243	54.0	12 M	50.0	7:30 A	58.5	51.5	50.0	0.0
20	30.22	30.07	30.092	78.0	2 P	50.0	0 A	64.0	66.0	64.5	2.0
21	30.09	29.90	30.002	73.0	3 P	59.0	6 A	66.0	64.9	60.5	4.2
22	29.95	29.85	29.932	68.0	3 P	45.0	12 P	56.5	57.4	50.5	8.0
23	29.94	29.68	29.830	71.0	2 P	37.0	6 A	54.0	47.9	45.5	4.5
24	29.93	29.80	29.892	62.0	1 P	41.0	7 A	51.5	49.8	45.5	6.0
25	29.96	29.79	29.889	61.0	3 P	31.0	7 A	46.0	47.3	41.5	6.0
26	29.98	29.71	29.860	53.0	3 P	43.0	12 P	48.0	47.0	41.5	4.0
27	29.97	29.84	29.898	58.0	4:30 P	35.0	4 A	46.5	45.8	42.0	2.2
28	30.12	29.85	29.984	57.0	2:30 P	41.0	12 P	49.0	47.0	40.5	3.3
29	30.21	30.11	30.155	59.0	3 P	31.0	6 A	45.0	49.3	39.0	7.3
30	30.13	30.04	30.088	57.0	3 P	37.0	6 A	47.0	49.9	39.0	4.0

DAILY SUMMARY.

Day.	Humidity.			Wind.					Precipitation.			
	Mean Dew Point.	Mean Force vapor.	Mean Relative Humidity	Prevailing Direction.	Total Movement in Miles.	Maximum Pressure Per Square Ft	Miles per Hour.	Time.	Beginning.	Ending.	Total in Inches. Rain.**	Total in Inches. Snow.
1	50.5	.449	81.5	S.W.	78	0.0	—	—				
2	48.5	.450	77.0	S.E.	81	1.5	18	3 P				
3	58.0	.520	94.5	N.W	90	0.0	—	—	4 A	12:30 P	1.87	
4	57.5	.600	79.5	S.E.	108	0.0	—	—	5 A	5:30 A	.02	
5	53.0	.480	83.0	E.	66	0.0	—	—				
6	55.0	.462	93.0	N.W.	51	0.0	—	—				
7	55.0	.502	88.5	S.W.	79	0.0	—	—	7:30 P	7:45 P	T	
8	50.5	.495	91.5	N.W.	40	0.0	—	—				
9	58.5	.581	84.5	W.N.W.	107	2.0	20	12 M				
10	52.5	.474	84.0	S.S.E.	91	0.0	—	—				
11	66.0	.709	91.5	S.E.	140	0.0	—	—				
12	57.0	.498	94.0	E.N.E.	89	0.0	—	—				
13	65.5	.648	96.0	S.	71	4.0	28	7 P	7:15 P	7:30 P	.14	
14	55.5	.588	75.0	N.N.W.	248	2.0	20	4 P				
15	54.5	.504	83.5	N.E.	154	0.0	—	—				
16	62.5	.624	92.5	S. E.	102	0.5	10	11 M				
17	63.5	.630	92.5	S.S.E.	115	2.0	20	6 P	7 P	10:30 P	.56	
18	50.5	.470	77.5	N.	161	0.5	10	11 A	7 P	8 P	.05	
19	48.0	.386	87.0	N.	196	2.5	23	1 P	12 M	12 P	.30	
20	63.5	.666	87.5	S.E.	282	5.5	33	11 P	0 A	1 A	.03	
21	59.0	.570	86.5	S.	183	0.0	—	—				
22	46.5	.429	73.5	N.N.W.	185	1.5	18	1 P				
23	43.5	.333	86.5	S.S.E.	113	0.0	—	—	5 P	5:30 P	T	
24	42.5	.342	78.5	N.W.	79	0.0	—	—				
25	37.5	.307	75.5	S.	87	5.0	30	2 P	2 P	2:30 P	T	
26	37.0	.301	71.0	N.W.	242	4.0	28	5 P	1 A	2 P	.08	
27	40.0	.286	88.5	S.	214	3.0	25	9 P	7:30 P	8 P	T	
28	38.5	.274	84.5	W.	169	2.0	20	12 M	8 P	10 P	.02	
29	37.5	.254	88.0	S W.	47	0.0	—	—				
30	37.5	.254	88.0	N.	76	0.0	—	—				

** Rain or melted snow at base of tower. * Included in following day.

SUMMARY.

The weather during the past month has been more nearly normal than previous months of the season. There was still a lack of sunshine. The number of hours of bright sunshine was 48 per cent of the possible hours for the month of September. The normal sunshine for the month is 53 per cent. The rainfall for the month was less than normal, being 3.07 inches. The normal is 4.07 inches. The average relative humidity was 85.2 per cent, while the normal humidity for September is 78.6 per cent. The hourly mean temperature was 57.8 degrees, which is 3.5 degrees less than normal. The highest temperature recerded during the the month was 84 degrees, while the normal maximum for September is 87 degrees. The lowest temperature recorded was 31 degrees on the 25th and the 29th. The first frost, on the 25th, is somewhat later than normal, the normal date for the first frost being September 18th. The wind movement was slightly greater than normal, being 3744 miles. The normal for the month is 3362 miles. No heavy gales were observed. The barometer was very nearly normal.

C. I. GUNNESS, Meteorologist

L. O. JONES, Observer.

BULLETIN No. 478. OCTOBER, 1928

Meteorological Observations
AT THE
MASSACHUSETTS
AGRICULTURAL EXPERIMENT
STATION.

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of Wind Instruments 67 ft. Time used, 75th Mer.

MONTHLY SUMMARY.

Pressure. In inches.

Maximum reduced to freezing	30.26, 30th, 10 A.
Minimum reduced to freezing	29.27, 24th, 2 P.
Reduced maximum reading	30.55, 30th, 10 A.
Reduced minimum reading	29.55, 24th, 1 P.
Mean semi-daily reduced	30.110
Monthly range	1.00

Air Temperature. In Degrees Fahr.

Highest	86.0, 12th, 3 P.
Lowest	19.5, 30th, 6-30 A.
Mean hourly	51.1
Mean of means of max. and min.	51.8
Mean sensible (wet bulb)	46.2
Monthly range	66.5
Highest mean daily	70.3, 18th
Lowest mean daily	29.0, 30th
Mean maximum	64.6
Mean minimum	39.3
Greatest daily range	41.0, 15th
Least daily range	10.0, 20th

Humidity.

Mean dew point	42.9
Mean force of vapor	.384
Mean relative humidity	79.2

Precipitation. In inches.

Total precipitation, in inches	.87
Number of days on which .01 inch or more rain fell	5

Wind.

Total movement	4512m
Greatest daily movement	301m, 20th
Least daily movement	43m, 4th
Mean daily movement	145.6m
Mean hourly velocity	6.1m

Maximum pressure per square foot, 6.5 lbs = 36m per hour, 18th, 4P. 23rd, 3 P.

Maximum velocity for 5 minutes, 32m per hour, 9th, 6P.

Prevailing direction, South Southwest

Summary.

South	32 per cent
Southeast	16 " "
West	13 " "
Northwest	13 " "
West Northwest	10 " "
Other directions	16 " "

Weather.

Mean cloudiness observed	34 per cent
Total cloudiness recorded by the Sun Thermometer	174 hours = 51 per cent
Number of clear days	7
Number of fair days	12
Number of cloudy days	12

Bright Sunshine.

Number hours recorded. 167 = 49 per cent.

Rain. 5th, 16th, 18th, 20th, 23rd, 25th, 28th.

Thunder and Lightning. None.

Gales, 36m., 18th. E.S.E., 36m., 23rd. S.S.E.

DAILY SUMMARY.

Day.	Barometer Reduced to Sea Level.			Temperature. Ground Shelter.							No. Hours of Bright Sunshine.
	Maximum.	Minimum.	Mean. Semi-daily	Maximum.	Time.	Minimum.	Time.	Mean of Max. and Min.	Mean Hourly Draper.	Mean Sensible Wet Bulb.	
1	30.25	30.08	30.225	62.0	4:30 P	31.0	6 A	46.5	45.0	38.5	4.3
2	30.27	30.14	30.209	61.0	3 P	32.0	6 A	46.5	46.2	41.0	2.0
3	30.19	30.09	30.172	75.0	4 P	42.0	6 A	58.5	55.6	51.2	5.5
4	30.25	30.12	30.209	79.0	3 P	48.0	2 A	63.5	59.4	56.0	6.0
5	30.24	29.94	30.107	66.0	7 P	50.0	5 A	58.0	58.3	59.2	0.0
6	30.10	29.93	30.076	70.0	4:30 P	45.0	12 P	57.5	58.6	50.2	8.3
7	30.17	29.95	30.022	65.0	3 P	38.0	12 P	51.5	52.7	47.0	9.0
8	30.31	30.11	30.244	63.0	3 P	32.0	6 A	47.5	45.8	40.0	9.5
9	30.11	29.70	29.864	72.5	2:30 P	43.0	1 A	57.5	59.5	54.5	3.0
10	30.25	29.90	30.154	63.0	3 P	40.0	7 A	51.5	50.3	44.5	10.2
11	30.27	30.00	30.169	79.0	3 P	39.0	6 A	59.0	57.1	50.5	7.0
12	30.20	30.01	30.118	86.0	3 P	48.0	7 A	67.0	66.1	59.2	8.0
13	30.15	29.87	29.992	74.0	8:30 A	43.0	12 P	58.5	59.3	54.7	0.0
14	30.28	30.15	30.270	62.0	3 P	31.0	12 P	46.5	43.5	37.0	10.5
15	30.29	30.06	30.188	69.0	3 P	28.0	6 A	48.5	48.3	41.7	8.5
16	30.11	30.03	30.075	73.5	3 P	47.5	6 A	60.5	61.2	58.0	2.5
17	30.05	29.93	29.998	76.0	4 P	62.5	3 A	69.2	68.7	66.0	0.5
18	30.01	29.88	29.946	80.0	2 P	65.0	1 A	72.5	70.3	67.0	4.5
19	29.96	29.75	29.893	77.0	2 P	62.0	9 A	69.5	66.8	61.2	6.8
20	29.96	29.73	29.840	58.0	1 P	48.0	11 P	53.0	54.0	46.5	6.5
21	30.38	29.96	30.292	60.5	4 P	38.0	12 P	49.2	48.6	42.5	9.5
22	30.39	30.14	30.290	63.0	2 P	32.5	7 A	47.7	47.6	42.5	5.0
23	30.14	29.59	29.824	74.0	12 M	50.0	0 A	62.0	59.8	59.5	2.0
24	29.68	29.55	29.636	58.0	0 A	36.0	11 P	42.0	47.7	42.2	0.2
25	29.89	29.68	29.802	51.0	2 P	34.0	6 A	42.5	41.0	37.7	3.0
26	30.34	29.89	30.214	43.0	3 P	27.0	12 P	35.0	34.1	29.5	3.0
27	30.48	30.20	30.374	49.0	3 P	22.5	5 A	35.7	35.2	30.3	6.2
28	30.20	29.95	30.027	53.5	3 P	38.0	3 A	45.7	43.8	40.3	1.3
29	30.30	30.03	30.206	46.0	2 P	25.0	12 P	35.5	36.0	28.7	6.0
30	30.55	30.30	30.523	43.0	3 P	19.5	6:30 A	31.2	29.0	24.8	9.5
31	30.54	30.38	30.458	51.5	2:30 P	22.0	6 A	36.8	35.0	29.8	8.3

DAILY SUMMARY.

Day.	Humidity.			Wind.					Precipitation.			
											Total in Inches.	
	Mean Dew Point.	Mean Force vapor.	Mean Relative Humidity	Prevailing Direction.	Total Movement in Miles.	Maximum Pressure Per Square Ft	Miles per Hour.	Time.	Beginning.	Ending.	Rain.**	Snow.
1	36.0	.251	87.0	W.	50	0.0	—	—				
2	38.0	.287	89.5	S.E.	72	0.0	—	—				
3	49.5	.403	89.5	S.	75	0.0	—	—				
4	54.5	.496	88.5	S.	43	0.0	—	—				
5	58.5	.521	96.0	S.	92	2.5	22	6 P	10:30 A	10:30 P	.24	
6	46.0	.438	72.5	W.	192	3.0	24	10 A				
7	43.0	.373	74.5	W.	177	4.5	30	3 P				
8	36.5	.276	79.5	S.	97	0.0	—	—				
9	50.0	.533	70.5	S.	249	4.0	28	10 A				
10	40.5	.341	73.0	W.	195	2.0	20	2 P				
11	47.0	.451	74.5	S S E.	80	0.0	—	—				
12	57.5	.578	84.0	S.W.	104	0.0	—	—				
13	50.5	.568	68.0	N.W.	171	4.0	28	3 P				
14	28.5	.269	58.0	N.	183	0.0	—	—				
15	39.0	.318	79.5	S.	91	2.5	22	2 P				
16	56.5	.540	85.0	S.E.	103	0.0	—	—	8 P	8:30 P	T	
17	65.0	.690	90.5	S. E.	147	1.5	18	4 P				
18	66.0	.713	89.5	S.E.	213	6.5	36	4 P	8 P	11 P	.05	
19	59.5	.590	87.0	S.E.	154	1.5	18	12 M				
20	40.0	.393	63.0	W.N.W.	301	3.5	26	3 P	1:30 A	2 A	.05	
21	38.5	.316	72.5	W.N.W.	193	1.5	18	10 A				
22	41.0	.315	88.0	S.	125	3.0	24	1 P				
23	59.5	.509	100.0	S.S.E.	167	6.5	36	3 P	4:30 P	9 P	.30	
24	38.0	.325	72.0	N.W	254	4.0	28	3 P				
25	34.5	.248	82.0	W.S.W.	151	2.0	20	2 P	5:30 P	6 P	T	
26	21.0	193	60.0	N.W.	180	4.0	28	3 P				
27	24.5	.195	71.5	S.	76	0.0	—	—				
28	38.0	.269	86.5	S.	134	1.5	18	12 M	0:30 A	6:30 P	.23	
29	20.5	.188	59.0	W.N.W.	268	4.5	30	12 M				
30	22.0	.141	85.0	N.W.	77	0.0	—	—				
31	29.0	.186	79.5	S.	98	2.0	20	3 P				

** Rain or melted snow at base of tower. * Included in following day.

REMARKS

The weather during the month of October was pleasant and fairly seasonable with some slight variations from normal conditions. The barometer was normal, showing a maximum of 30.55 inches on the 30th and a minimum of 29.55 inches on the 24th. The latter is .13 higher than the normal minimum for the month of October.

The hourly average temperature for the month was 51.1 degrees which is .9 of a degree higher than normal. The maximum of 86 degrees on the 12th is 7 degrees higher than the highest temperature normally observed in October. The minimum of 19.5 degrees on the 30th is lower than normal, the normal minimum for October being 23.1 degrees. Especially warm weather prevailed during the day between the 11th and the 19th. A general killing frost did not occur until October 15. The light frost in September killed tender plants in certain locations but in more sheltered locations these were not injured until the frost on the 15th.

The amount of sunshine was 49 per cent of the possible amount for this season of the year, and is .6 per cent higher than normal. A very small amount of rain fell during the month. The rainfall was .87 inches, while the normal rainfall for October is 3.69 inches. The total rainfall for the season is still well above the average.

The relative humidity was 79 2 per cent. This is 4.2 per cent higher than normal. The total wind movement was 4512 miles. This is somewhat higher than normal as the average wind movement for October is 4115 miles. No severe gales were recorded, the highest wind being 36 miles per hour on the 18th and 23rd.

C. I. GUNNESS, Meteorologist

L. O. JONES, Observer.

BULLETIN No. 479. NOVEMBER, 1928

Meteorological Observations
AT THE
MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION.

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of Wind Instruments 67 ft. Time used, 75th Mer.

MONTHLY SUMMARY.

Pressure. In inches.

Maximum reduced to freezing,	30.23, 1st, 8 A.
Minimum reduced to freezing,	29.14, 19th, 7-30 P.
Reduced maximum reading,	30.53, 1st, 8 A.
Reduced minimum reading,	29.43, 19th, 7-30 P.
Mean semi-daily reduced	30.001
Monthly range	1.10

Air Temperature. In Degrees Fahr.

Highest	73.0, 17th, 12-30 P.
Lowest	14.5, 28th, 2-30 A.
Mean hourly	39.4
Mean of means of max. and min.	40.0
Mean sensible (wet bulb)	35.4
Monthly range	58.0
Highest mean daily	61.2, 16th
Lowest mean daily	30.4, 23rd
Mean maximum	48.7
Mean minimum	31.7
Greatest daily range	34.0, 14th
Least daily range	5.5, 30th

Humidity.

Mean dew point	31.1
Mean force of vapor	.246
Mean relative humidity	78.1

Precipitation. In inches.

Total precipitation, in inches	1.88
Number of days on which .01 inch or more rain fell	9
Total snow in inches,	2

Wind.

Total movement	4736m
Greatest daily movement	442m, 7th
Least daily movement	34m, 2nd
Mean daily movement	157.9m
Mean hourly velocity	6.6m

Maximum pressure per square foot, 15.0 lbs = 55m per hour, 6th, 9 P.

Maximum velocity for 5 minutes, 48m per hour, 6th, 4-30 P.

Prevailing direction, West Southwest

Summary.

West	27	per cent
Northwest	27	" "
South	13	" "
East	7	" "
Southeast	7	" "
North Northwest	7	" "
Other directions	12	" "

Weather.

Mean cloudiness observed . . . . 53 per cent

Total cloudiness recorded by the Sun Thermometer . . 171 hours = 58 per cent

Number of clear days	7
Number of fair days	6
Number of cloudy days	17

Bright Sunshine.

Number hours recorded. 121 = 42 per cent.

Rain, 2nd, 3rd, 4th, 6th, 8th, 12th, 17th, 19th, 22nd, 30th.

Snow, 8th, 22nd, 25th, 30th.

Gales, 55m., 6th, S.E., 35m., 7th, W.N.W., 38m, 9th, N.W., 40m., 19th, S., 35m, 20th, N.W., 35m. 25th, N.N.W., 35m. 27th, N.W.

DAILY SUMMARY.

Day.	Barometer Reduced to Sea Level.			Temperature. Ground Shelter.							No. Hours of Bright Sunshine.
	Maximum	Minimum.	Mean. Semi-daily	Maximum	Time.	Minimum.	Time.	Mean of Max. and Min.	Mean Hourly Draper.	Mean Sensible Wet Bulb.	
1	30.53	30.34	30.448	60.0	3 P	27.0	6:30 A	43.5	40.7	33.7	9.5
2	30.37	30.24	30.123	51.0	2:30 P	35.0	7 A	43.0	42.9	39 5	1.7
3	30.24	29.75	30.014	49.5	1 P	43.0	6 A	46.3	46.3	46.2	0.0
4	29.75	29 57	29.685	54.0	2 P	44.0	8:30 P	49.0	48.3	45.8	0.3
5	30.11	29.72	30.048	50.0	2:30 P	31.0	7 A	40.5	40.3	30.2	9.0
6	29.94	29.46	29 631	58.5	3:30 P	36.0	0:30 A	47.2	48.5	42.3	3.3
7	29 90	29.64	29.852	53.0	3 P	43.0	6 A	48.0	47.4	38.5	9 2
8	29.81	29.60	29.692	45.0	0 A	33.0	12 P	39.0	38.7	35.8	0.0
9	30.14	29.75	30.013	42.0	1 P	30.0	12 P	36.0	34 5	31.8	2.5
10	30.27	30.14	30.261	47.5	2:30 P	25 0	4 A	36.3	34.7	30.5	7.5
11	30.28	30.04	30.184	45.5	3 P	27.0	12 P	36.3	34.5	30.8	6.7
12	30.04	29.83	29.914	42.0	2:30 P	21.0	7 A	31.5	32.7	29.3	6.2
13	30.37	29.93	30.258	51.0	3 P	25.0	7 A	38.0	35.3	28.0	8.3
14	30.43	30.30	30.384	59.0	3 P	25.0	3 A	42.0	41.4	35.8	7.5
15	30.30	30.02	30.144	65 0	2:30 P	43.5	7:30 A	54.3	52.3	45.0	6.3
16	30.13	30.02	30.112	68.5	3-30 P	53.0	0 A	60.8	61.2	52.5	7.3
17	30.08	29.87	29.950	73.0	12-30 P	55.5	2 A	64.3	61.6	54.8	6.2
18	30.00	29.81	29.895	59.0	0 A	46.0	12 P	52.5	52.5	49.5	0.0
19	29.93	29.43	29.702	62.0	8 P	45.0	7:30 A	53.5	49.0	52.8	0.0
20	29.92	29.52	29.813	54.0	0 A	30.0	12 P	42.0	40.2	33.3	2.7
21	29.94	29.68	29.854	35.0	2:30 P	27.0	7 A	31.0	31.0	27.3	3.5
22	29.83	29.55	29.674	41.0	2:30 P	29.0	12 P	35.0	34.6	32.8	0.5
23	30.10	29.83	30.042	38.0	3 P	23.5	7 A	30 7	30.4	26.3	3.0
24	30.06	29.84	29.905	38.0	3 P	28.0	0 A	33.0	31.0	30.5	0.3
25	29.93	29.69	29.834	40.0	11 A	21.0	12 P	30.5	29.8	26.5	2.3
26	30.04	29.92	30.002	28.0	2 P	18 0	7:30 A	23.0	21.2	18.5	8.0
27	30.31	29.90	30.194	32.5	2 P	17.0	12 P	24.8	24.7	21.8	8.3
28	30.30	30.04	30.139	42.0	3 P	14 5	2:30 A	21.0	30 5	28.8	0.7
29	30.16	30.03	30.090	46.0	3 P	29.0	12 P	37.5	38.6	35.5	0.6
30	30.19	29.53	29.974	32.0	8 P	26.5	2:30 A	29.2	29.1	27.8	0.0

DAILY SUMMARY.

Day.	Humidity.			Wind.					Precipitation.			
	Mean Dew Point.	Mean Force vapor.	Mean Relative Humidity	Prevailing Direction.	Total Movement in Miles.	Maximum Pressure Per Square Ft	Miles per Hour.	Time.	Beginning.	Ending.	Total in Inches.	
											Rain.**	Snow.
1	30.5	.215	83.0	S.	60	0.0	—	—				
2	36.5	.268	83.0	N.W.	34	0.0	—	—	7 P	10 P	T	
3	46.0	.317	98.0	N.W.	41	0.0	—	—	2 P	12 P	.14	
4	44.5	.319	92.5	W.	40	3.5	26	11 P	0 A	4:30 P	.12	
5	20.0	.209	53.5	S.	165	2.5	22	4 A				
6	33.0	.345	58.0	S.	297	15.0	55	9 A	9:30 A	2 P	.04	
7	29.5	.296	56.5	W.N.W.	442	6.0	35	9 A				
8	33.5	.224	87.0	N.N.W.	119	1.5	18	6 P	6:30 A	8 P	.20	T
9	27.0	.197	76.5	N.W.	307	7.0	38	2 P				
10	26.0	.189	76.0	N.W.	70	0.0	—	—				
11	25.0	.177	77.5	N.W.	118	0.0	—	—				
12	26.5	.175	87.5	W.	49	0.0	—	—	4:30 P	5 P	T	
13	24.5	.169	80.0	N.	113	1.5	18	10 A				
14	30.5	.252	72.5	S.E.	104	0.0	—	—				
15	41.0	.353	72.5	S.E.	166	2.0	20	10 P				
16	47.5	.494	66.0	W.	246	3.5	26	11 A				
17	51.0	.508	74.0	S.W.	148	1.0	14	2 P	1 A	2 A	.02	
18	48.5	.368	93.0	E.	128	0.0	—	—	4:30 A	5:30 A	.09	
19	52.0	.427	94.5	E.	78	8.0	40	6:30 P	6:30 A	11 P	.36	
20	24.0	.232	57.0	N.N.W.	338	6.0	35	7 A				
21	19.0	.173	61.5	W.	138	0.0	—	—				
22	30.5	.194	87.5	W.	164	1.0	14	3 P	1 A	5 A	.08	$\frac{3}{4}$
23	21.5	.155	76.0	N.W.	128	2.0	20	2 P				
24	28.0	.179	87.5	S.S.E.	139	0.0	—	—				
25	21.5	.160	76.0	W.	238	6.0	35	10:30 P	1 P	2:30 P	.02	$\frac{1}{2}$
26	16.5	.109	89.0	W.	336	5.5	33	0:30 A				
27	18.5	.125	83.5	N.W.	263	6.0	35	7 A				
28	25.5	.174	83.5	S.	72	1.5	18	1 P				
29	32.5	.223	84.5	W.	135	0.5	10	4 P				
30	23.0	.167	76.0	N.W.	60	0.0	—	—	12 M	12 P	.81	$\frac{3}{4}$

** Rain or melted snow at base of tower. * Included in following day.

REMARKS

The weather during the month of November was warm and pleasant with very little rain or snow. The outstanding feature was the high temperature in the middle of the month. The average hourly temperature for the 16th and 17th was 61.2 and and 61.6 degrees respectively. The highest temperature on the 17th was 73 degrees. Only twice since the station was established in 1889 has such a high temperature been recorded during November. This was in 1903, when the thermometer reached 74.5 degrees on November 4th, and in 1924 when it reached 75 degrees on the 1st and 7th. In no case has a temperature of 73 degrees been reached as late as November 17th. The minimum temperature was 14.5 degrees on the 28th. This is not as low a temperature as can be expected during November, as the average minimum for the station is 13.5 degrees. The college pond was frozen so as to permit skating on the last two days of the month.

The total precipitation during the month was 1.88 inches. The normal precipitation is 3.20 inches. The total snowfall was 2 inches.

The average relative humidity was 78.1 per cent. This is higher than usual, as the normal relative humidity for November is 75.7 per cent.

The amount of bright sunshine was 42 per cent of the possible amount; which is .4 higher than normal.

The wind movement was somewhat higher than normal, being 4736 miles. The normal wind movement is 4565 miles. A gale of 55 miles was recorded on the 6th and one of 38 miles on the 9th.

The barometer was very nearly normal in all respects. The maximum was 30.53 as compared with a normal of 30.68. The minimum, 29.43 compared with a normal of 29.29. The mean was 30.001 as compared to a normal of 30 04.

C. I. GUNNESS, Meteorologist

L. O. JONES, Observer.

BULLETIN No. 480. DECEMBER, 1928

Meteorological Observations
AT THE
MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION.

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of Wind Instruments 67 ft. Time used, 75th Mer.

MONTHLY SUMMARY.

Pressure. In inches.

Maximum reduced to freezing,	30.22, 22d, 10 A.
Minimum reduced to freezing,	28.84, 18th, 4 A.
Reduced maximum reading,	30.53 22d, 10 A.
Reduced minimum reading,	29.12, 18th, 4 A.
Mean semi-daily reduced	30.095
Monthly range	1.41

Air Temperature. In Degrees Fahr.

Highest	56.0, 17th, 11 P.
Lowest	8.5, 23rd, 6 A.: 24th. 7½ A.
Mean hourly	31.6
Mean of means of max. and min.	32.4
Mean sensible (wet bulb)	27.7
Monthly range	47.5
Highest mean daily	45.2, 17th
Lowest mean daily	16.1, 23rd
Mean maximum	40.6
Mean minimum	24.1
Greatest daily range	30.5, 24th
Least daily range	6.5, 20th

Humidity.

Mean dew point	22.9
Mean force of vapor	.173
Mean relative humidity	77.0

Precipitation. In inches.

Total precipitation, in inches	.97
Number of days on which .01 inch or more rain fell	9
Total snow in inches,	.25

Wind.

Total movement	5061 m
Greatest daily movement	472m, 30th
Least daily movement	34m, 24th
Mean daily movement	163 m
Mean hourly velocity	6.8m

Maximum pressure per square foot, 13.5 lbs = 52m per hour, 30th, 11 A.

Maximum velocity for 5 minutes, 50m per hour, 30th, 11 A.

Prevailing direction, West Southwest

Summary.

West	32	per cent
Northwest	23	" "
South	19	" "
North Northwest	13	" "
Other directions	13	" "

Weather.

Mean cloudiness observed	47 per cent
Total cloudiness recorded by the Sun Thermometer	148 hours = 52 per cent
Number of clear days	9
Number of fair days	10
Number of cloudy days	12

Bright Sunshine.

Number hours recorded. 135= 48 per cent.

Rain. 1st, 3rd, 5th, 8th, 17th, 18th, 20th, 27th, 28th.

Snow. 8th,

Gales. 35m., 8th, N.N.W., 36m., 9th, N.N.W. 41m, 10th, N.W., 35m., 17th, S.S.E., 45m. 18th, W., 42m., 21st, N.W., 52m., 30th, N.N.W.

DAILY SUMMARY.

Day.	Barometer Reduced to Sea Level.			Temperature. Ground Shelter.							No. Hours of Bright Sunshine.
	Maximum	Minimum.	Mean. Semi-daily	Maximum	Time.	Minimum.	Time.	Mean of Max. and Min.	Mean Hourly Draper	Mean Sensible Wet Bulb.	
1	29.86	29.51	29.708	41.0	2 P	29.0	10 P	35.0	34.0	32.3	0.0
2	30.22	29.86	30.125	45.0	1 A	29.0	2 A	37.0	36.7	33.0	0.0
3	30.23	29.98	30.114	44.0	4 P	32.0	7 A	38.0	37.5	36.0	0.0
4	30.15	30.02	30.133	43.5	3 P	29.0	12 P	36.3	36.8	35.0	0.7
5	30.11	29.84	30.012	41.0	3 P	29.0	0 A	35.0	33.0	29.8	0.0
6	30.31	30.11	30.274	35.5	2 P	26.5	6 A	31.0	29.0	25.8	7.7
7	30.30	30.14	30.267	36.0	2 P	17.5	7:30 A	26.8	25.5	20.8	4.3
8	30.25	30.13	30.189	32.0	1 P	23.0	12 P	27.5	27.8	24.8	0.0
9	30.17	29.74	30.016	32.0	3 P	22.0	6 A	27.0	27.1	25.5	0.0
10	30.10	29.74	29.962	36.0	2 P	20.0	12 P	28.0	28.3	24.0	8.0
11	30.25	30.10	30.200	41.5	2 P	16.5	3:30 A	29.0	28.4	25.8	4.5
12	30.45	30.25	30.436	45.0	2:30 P	22.5	6:30 A	33.8	31.3	24.8	7.8
13	30.48	30.25	30.384	44.0	2 P	24.0	6 A	34.0	34.0	29.8	5.4
14	30.30	30.23	30.271	47.0	2 P	29.0	12 P	38.0	36.5	29.8	6.0
15	30.38	30.16	30.302	47.5	2:30 P	22.0	7:30 A	34.8	34.8	29.0	7.5
16	30.16	30.07	30.129	52.0	1:30 P	36.0	12 P	44.0	43.2	39.3	7.0
17	30.07	29.28	29.680	56.0	11 P	34.0	1 A	45.0	45.2	46.5	0.0
18	29.90	29.12	29.600	55.0	0 A	32.0	12 P	43.5	40.8	31.5	5.0
19	30.08	29.90	30.045	42.0	3 P	24.0	7:30 A	33.0	32.4	28.8	5.5
20	30.10	29.77	29.950	36.5	8 P	30.0	8 A	33.3	32.9	32.0	0.0
21	30.27	29.77	30.070	34.0	0 A	17.0	12 P	22.8	25.1	19.0	9.0
22	30.53	30.27	30.475	30.0	2-30 P	10.5	7 A	20.3	17.0	13.0	8.5
23	30.45	30.40	30.435	31.0	4 P	8.5	6 A	19.8	16.1	11.8	6.0
24	30.48	30.25	30.395	38.0	3:30 P	8.5	7:30 A	23.3	21.7	17.5	8.5
25	30.25	30.10	30.200	46.0	12 M	23.0	8 A	34.5	33.7	27.8	6.5
26	30.35	30.20	30.285	44.0	3 P	21.5	7:30 P	32.8	31.0	24.5	8.5
27	30.20	29.72	30.015	34.0	12 P	19.5	7 A	26.8	28.5	25.8	0.0
28	29.72	29.42	29.480	43.5	12 M	34.0	0 A	38.8	37.8	35.3	3.5
29	29.65	29.46	29.559	39.5	1 P	31.0	12 P	35.3	34.7	29.8	1.0
30	29.89	29.65	30.001	33.0	2:30 P	26.0	8 A	29.5	29.6	23.5	8.0
31	30.28	29.88	30.252	39.0	3 P	20.0	12 P	29.5	28.8	25.0	6.0

DAILY SUMMARY.

Day.	Humidity.			Wind.					Precipitation.			
	Mean Dew Point.	Mean Force vapor.	Mean Relative Humidity	Prevailing Direction.	Total Movement in Miles.	Maximum Pressure Per Square Ft	Miles per Hour.	Time.	Beginning.	Ending.	Total in Inches.	
											Rain.**	Snow.
1	29.0	.197	81.0	W.	125	3.0	24	3 P	0 A	2 A	.01	
2	28.5	.213	73.0	S.W.	53	0.0	—	—				
3	34.5	.223	88.5	S.W.	63	4.0	28	3:30 P	4:30 P	9 P	.07	
4	34.0	.205	97.5	N.W.	44	0.0	—	—				
5	24.5	.182	75.5	W.	133	4.5	30	5 P	10 A	1 P	.19	
6	22.0	.152	77.5	N.W.	264	3.5	26	1 P				
7	15.0	.127	71.5	S.	74	0.5	10	2 P				
8	20.0	.148	74.0	N.N.W.	272	6.0	35	11 P	5:30 P	11 P	.03	¼
9	21.0	.152	77.5	N.N.W.	355	6.5	36	8 P				
10	18.5	.144	71.5	N.W.	443	8.5	41	1:30 P				
11	22.0	.150	82.0	W.	92	1.5	18	12 M				
12	20.5	.146	80.0	N.N.W.	59	0.0	—	—				
13	26.0	.185	82.0	W.	41	0.0	—	—				
14	25.0	.182	77.0	N.	105	2.0	20	10:30 A				
15	23.0	.191	71.0	S.E.	69	0.0	—	—				
16	36.5	.259	84.0	W.	95	0.0	—	—				
17	44.0	.343	89.0	S.S.E.	147	6.0	35	9 P	10 A	12 P	.04	
18	21.0	.221	53.0	W.	445	10.0	45	1 P	0 A	5 A	.20	
19	26.0	.168	86.5	S.	153	2.5	22	10:30 P				
20	29.5	.190	87.5	S.	118	0.5	10	6 P	2:30 P	9 P	.05	
21	8.5	.123	55.0	N.W.	323	9.0	42	2 P		5 P		
22	7.5	.087	75.0	S.	105	0.0	—	—				
23	8.5	.082	81.5	W.	41	1.0	14	3 A				
24	14.5	.111	82.5	W.	34	0.0	—	—				
25	24.5	.170	83.0	W.	190	5.0	32	1 P				
26	20.5	.146	77.5	S.	54	0.0	—	—				
27	17.5	.153	81.0	N.W.	60	0.0	—	—	7:30 P	12 P	.16	
28	31.0	.226	77.0	N.W.	266	5.0	32	12 M	0 A	7 A	.22	
29	20.5	.198	58.0	W.	257	4.5	30	6 P				
30	13.0	.153	53.0	N.N.W.	472	13.5	52	11 A				
31	22.5	.144	85.0	N.W.	109	1.0	14	2 A				

** Rain or melted snow at base of tower. * Included in following day.

Annual Summary for 1928.

Pressure. In inches.

Maximum reduced to freezing,	30.40, Feb. 6th, 9 A.
Minimum reduced to freezing,	28.60, Jan. 25th, 6 A.
Maximum reduced to freezing and sea-level,	30.73, Feb. 6th, 9 A.
Minimum reduced to freezing and sea-level,	28.90, Jan. 25th, 6 A.
Mean semi-daily reduced to freezing and sea-level,	29.997
Annual range,	1.83

***Air Temperature.** In degrees Fahr.

Highest,	93.0, July 8th, 4-30 P.
Lowest,	-3.5, Jan. 30th, 7 A. Feb. 26th, 7 A.
Mean hourly,	47.4
Mean of means of max. and min.,	47.8
Mean sensible (wet bulb),	43.1
Annual range,	96.5
Highest mean daily,	78.1, Aug. 29th
Lowest mean daily,	9.6, Feb. 26th.
Mean maximum,	57.5
Mean minimum,	38.4
Mean daily range,	19.1
Greatest daily range,	47.0. May 10th.
Least daily range,	4.0 Feb. 9th. June 5th., June 20th.

Humidity.

Mean dew point,	40.2
Mean force of vapor,	.378
Mean relative humidity,	79.9

Wind.

Prevailing direction,	Southwest

Summary.

West	14 per cent
South	10 " "
South Southwest	9 " "
West Northwest	9 " "
Northwest	13 " "
Other directions,	45 " "
Total movement,	57,215 m
Greatest daily movement,	544m., Jan. 25th
Least daily movement,	21m., Feb. 1st.
Mean daily movement,	156.4 m
Mean hourly velocity,	6.5 m

Maximum pressure per square foot, 25.0 lbs.,= 71 m. per hour, Jan. 25th. 5 P. W.

Maximum velocity for 5 minutes, 48 m. per hour, Nov. 6th, 4.30 P.

Precipitation. In inches.

Total precipitation, rain or melted snow,	42.06
Snow total in inches,	30.0
Number of days on which .01 or more rain or melted snow fell,	122

Weather.

Mean cloudiness observed,	51 per cent.
Total cloudiness recorded by Sun Thermometer,	2253 hrs.=51 per cent.
Number of clear days,	93
Number of fair days,	116
Number of cloudy days,	157

Bright Sunshine.

Number of hours recorded, 2201 hrs.=49 per cent

Dates of Frosts.

Last,	May 14th
First,	Sept. 25th

Dates of Snow.

Last,	April 28th
First,	Nov. 8th

Gales of 50 or More Miles Per Hour.

51 m. Jan. 5th, N.W.; 50 m. Jan. 14th, W.; 71 m Jan. 25th, W.

51 m. Mar. 3d, W.

59 m. April 9th, W.

55 m. Nov. 6th, S. E

57 m. Dec. 30th, N. N. W.

*Temperature in ground shelter.

C. I. GUNNESS,
Meteorologist.

L. O. JONES
Observer.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Bulletin No. 481 **January, 1929**

Meteorological Observations

FOR

JANUARY
1929

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of Wind Instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum.		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	32.0	8 P	17.0	4 A	24.5	94.0	0.0	NW	52	7	10:30 A	11 P	-41	½″
2	33.0	5 A	18.0	12 P	25.5	63 0	5.5	W	214	26				
3	29.0	12 P	13.5	7:30 A	21.3	76 5	7 0	S	170	14				
4	30.0	2:30 A	11.0	12 P	20 5	64.0	7.7	W	310	26				
5	26.0	12 P	4 0	7 A	15.0	75.0	0.0	NW	55	5	10:30 P	12 P	.02	
6	56.0	11 A	26.0	0 A	41.0	73.5	0.0	S	313	33	0 A	2 P	1.31	
7	30.0	11:30 A	15.0	12 P	22.5	48.0	5 7	W	386	33	12 M	0:30 P	.01	¼″
8	23.0	3 P	14.5	7 A	18.8	70.5	7.0	W	320	26				
9	29.5	4 P	16.0	0 A	22.5	69.5	0.0	S	214	10				
10	44.0	2 P	27.5	3 A	35.8	79.5	0.0	W	173	30	2 A	2 P	.54	1¼″
11	32.0	2 P	20.0	7:30 A	26 0	75 0	6 5	SE	208	21				
12	29.0	1 A	16 0	7:30 P	22.5	61.5	8.0	SW	237	33	1:30 A	5 A	.12	1″
13	30.0	3 P	5.5	12 P	17.8	61.5	1.2	SW	233	33	2:30 P	3:30 P		T
14	16.0	3 P	0.0	7:30 A	8.0	70 5	7.5	W	286	21	10 P	12 P		T
15	22.5	4 P	1.0	12 P	11.8	96.0	5 0	NW	100	18	0 A	10:30 A	.48	1″
16	25.5	4 P	−11.0	7:30 A	7.3	65.5	7 5	SW	40	7	6:30 A			
17	26.0	12 P	4.0	1 A	15.0	97.0	0.0	W	54	7	6:03 A	12 P	.59	1″
18	46.0	4 P	26 0	0 A	36 0	90.5	5.2	SW	50	14	0 A	12 P	.04	
19	54 0	6:30 A	28.0	12 P	41.0	64.0	7 0	SW	345	26	0 A	7 A	.02	
20	38.0	12 M	21.0	12 P	29 5	74.5	3 5	W	288	35				
21	31.0	3:30 P	20.0	3 A	25 5	63 0	5 0	W	362	26				
22	33.0	2:30 P	23.0	8 A	28.0	59.5	6.5	NW	306	33				
23	39.0	11:30 A	21.0	5 A	30 0	69.5	4.7	SW	288	38	10 A	2 A	.16	2½″
24	28.0	3 P	15.0	11 P	21.5	63 5	4.7	NW	351	26				
25	26.0	8:30 P	16.0	0 A	21.0	75.0	0.0	NW	130	18	7:30 A	8 P	.64	4″
26	25 0	2 P	17-0	12 P	21.0	66.0	8.5	W	340	26				
27	29.0	3 P	11.0	7 A	20 0	61.0	8 0	NW	288	26				
28	26.0	1:30 P	5.0	7-30 A	15.5	67 0	8 0	NW	207	26				
29	16.0	8:30 P	5 5	8 A	10.8	63.5	6 0	NW	457	27				
30	25.0	3 P	11.0	7 A	18.0	65 0	6.0	NW	384	26				
31	23.5	3 P	11.0	7 A	34.5	83.0	0.6	NW	118	12	8 A	8 P	T	½″

*Based on least time required to blow one mile and corrected to conform to three cup anemometer.

MONTHLY SUMMARY

		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	5th, 30.74	30.71	31.00, 1927
Minimum	6th, 29.13	29.18	28.55, 1913
Mean semi-daily	30.015	30.07	
Range	1.61	1.54	2.18, 1913
Air Temperature			
Highest	6th, 56.0	50.4	61.5. 1890
Lowest	16th, −11.0	−7.4	−23.5, 1907
Mean	22.8	24.1	
Monthly range	67.0	58.2	
Highest mean daily	6th, 19th, 41.0		
Lowest mean daily	16, 7.3		
Mean maximum	30.8		
Mean minimum	13.8		
Greatest daily range	16th, 36.5		
Least daily range	26th, 8.0		
Precipitation. In inches	4.33	3.42	7.15, 1898
Snow. In inches	18.0	13	33, 1898, 1923; 1.75, 1911
Maximum precipitation in 24 hrs.	6th, 1.31		
Number of days on which .01 or more inches of rain fell	12	11	18, 1923; 4, 1889
Wind (miles)			
Total movement	7279	5068	7770, 1908; 2896, 1895
Greatest daily movement	29th, 457		
Least daily movement	16th, 40		
Mean hourly velocity	9.8	6.8	
Maximum velocity for 5 min (corrected to conform to 3 cup anemometer)	23rd, 38	30	40, 1913
Wind (direction)			
Prevailing direction	W	WNW	
North, days	0		
Northeast, days	0		
East, days	0		
Southeast, days	1		
South, days	3		
Southwest, days	6		
West, days	10		
Northwest, days	11		
Weather			
Mean relative humidity, per cent	71.1	78.2	85.3, 1927; 68.2, 1890
Mean cloudiness, per cent	46	54	66, 1898; 38, 1922
Number of clear days	10	8	16, 1922; 2, 1914
Number of fair days	11	10	18, 1890, 1926; 3, 1916
Number of cloudy days	10	13	22, 1923; 4, 1920
Number of hours bright sunshine	139.4	140	214, 1920; 76, 1923
Per cent of possible hours bright sunshine	47	47.6	

NOTE—The first column in the above summary gives observations made during the past month. The second and third columns give the averages and extremes observed from 1889 to 1928 for the same month of the year.

REMARKS

The weather for January was very pleasant and in general, seasonal. The early part of the month had practically no snow and the weather was mild. In the latter part considerable snow fell but in as much as there was no previous accumulation, we have only about 3 inches on the ground at the present time.

The total snow fall during the month was 18 inches which is 5 inches more than normal in January. It may be interesting to note that the snowfall for January 1923 was 33 inches. The total precipitation for the past month was 4.33 inches which is also greater than normal, the normal being 3.42 inches.

The highest temperature recorded was 56 degress on the 6th. This is about 6 degrees higher than the highest temperature usually recorded in January. The lowest temperature was —11 degrees on the 16th. The average minimum temperature recorded in January is —7.4 degrees. The lowest temperature recorded in January at this station was in 1907 when the mercury fell to —23.5 degrees. The mean temperature for the past month was 22.8 degrees. The average mean for January is 24.1 degrees.

There was a large amount of wind mostly from the West and Northwest. The total movement was 7279 miles while the normal wind movement for January is 5068 miles.

C. I. GUNNESS, Meteorologist

L. O. JONES, Observer.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 482 February, 1929

Meteorological Observations
FOR
February
1929

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum.		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	28.0	2 P	18.0	7-30 A	23.0	86.5	6.8	nw	302	24	8 P	9 P	T	T
2	33.0	3 P	22.0	7-30 A	27.5	60.0	3.3	nw	318	24	6-30 A	8 A	T	T
3	34.5	1-30 P	11.0	8 A	22.8	85.5	10.0	nw	185	6				
4	32.0	4 P	2.0	7-30 A	17.0	83.5	9.2	nw	42	4				
5	33.0	4-30 P	-1.0	7-30 A	16.0	81.5	9.0	nw	42	5				
6	33.5	3 P	12.5	1 A	23.0	83.5	0.0	nw	65	10	2 P	12 P	.12	0.5
7	40.0	6 P	31.0	0 A	35.5	85.5	0.0	nw	202	20	0 A	1 P	1.84	
8	42.0	4-30 P	31.0	7-30 A	36.5	75.5	1.8	w	196	19				
9	37.0	4 P	32.0	9 A	34.5	90.5	0.0	s	65	7	7 A	10 P	.18	T
10	35.0	1 P	23.0	12 P	29.0	80.0	2.3	nw	176	23				
11	30.0	3 P	15.5	7 A	22.7	69.0	7.5	nw	147	10				
12	25.0	4 P	11.0	12 P	18.0	70.0	5.5	w	167	21				
13	26.0	4 P	4.5	6-30 A	15.3	74.5	5.5	s	59	7				
14	32.0	4 P	16.5	6 A	24.3	75.0	1.5	e	162	12	3 P	5 P	T	T
15	40.0	4 P	24.0	2 A	32.0	69.0	6.3	sw	89	10	0 A	5 A	.03	0.5
16	42.5	3 P	17.0	4 A	29.8	79.5	7.3	w	69	10				
17	47.0	3 P	16.5	7-30 A	31.8	74.0	8.5	sw	58	6				
18	54.5	3 P	29.5	1 A	42.0	71.5	6.0	s	183	14				
19	32.0	0 A	15.0	12 P	23.5	75.5	0.0	nw	166	18	12 M	12 P	.14	2.0
20	23.0	3 P	0.5	12 P	11.8	62.0	9.3	nw	248	19	0 A	5 A	.09	2.0
21	19.5	8-30 P	-0.5	1 A	9.5	95.5	0.0	nw	146	18	6 A	10 P	.40	5.0
22	35.5	2-30 P	15.0	0 A	25.3	59.0	8.0	sw	189	23				
23	25.0	2 P	7.0	7 A	16.0	62.5	7.0	nw	166	14				
24	31.5	3-30 P	-1.0	7 A	15.3	79.5	7.5	se	118	14				
25	43.0	3-30 P	19.5	7-30 A	31.3	73.0	8.0	nw	138	14				
26	33.0	9 P	22.0	4 A	27.5	91.5	0.0	nw	64	10	6 A	9 P	1.00	4.0
27	47.0	3-30 P	32.0	5-30 A	39.5	80.5	4.8	nw	131	21				
28	35.0	0 A	31.0	12 P	33.0	90.0	0.0	nw	112	11	7 A	12 P	.12	1.0

*Based on least time required to blow one mile and corrected to conform to three cup anemometer.

MONTHLY SUMMARY

February, 1929	Normal	Extremes
Barometer (Readings reduced to sea level)		
Maximum 30.48, 13th	30.63	31.05, 1920
Minimum 29.59, 7th	29.20	28.56, 1895
Mean semi-daily 29.927,	30.03	
Range .89	1.43	1.89, 1900, 1908
Air Temperature		
Highest 54.5, 18th	50.3	57.5, 1890
Lowest –1, 5th, 24th	–7.9	–22.5, 1918
Mean 25.5	23.5	
Monthly range 55.5	58.2	
Highest mean daily 42, 18th		
Lowest mean daily 9.5, 21st		
Mean maximum 34.6		
Mean minimum 16.3		
Greatest daily range 34, 5th		
Least daily range 4, 28th		
Precipitation		
Precipitation. In inches 3.92	3.35	8.12, 1900
Snow. In inches 15.0	14.27	48.75, 1893, 2½ 1912
Maximum precipitation in 24 hrs. 1.96, 6th, 7th		
Number of days on which .01 or more inches of rain fell 9	10	
Wind (miles)		
Total movement 4005	4833	6445, 1896; 3438, 1892
Greatest daily movement 318, 2nd		
Least daily movement 42, 4th, 5th		
Mean hourly velocity 6.0	7.1	
Maximum velocity for 5 min. 24, 1st, 2nd (corrected to conform to 3 cup anemometer)	29	42, 1912
Wind (direction)		
Prevailing direction w n w	wnw	
North, days 0		
Northeast, days 0		
East, days 1		
Southeast, days 1		
South, days 3		
Southwest, days 3		
West, days 3		
Northwest, days 17		
Weather		
Mean relative humidity, per cent 77.3	77.9	90, 1889; 66.8, 1902
Mean cloudiness, per cent 47.0	50.5	66, 1890, 1927; 31, 1905
Number of clear days 11	10	17, 1924; 2, 1927
Number of fair days 8	8	16, 1920; 3, 1890
Number of cloudy days 9	10	16, 1894; 2, 1920
Number of hours bright sumshine 135	160	221, 1924; 110, 1927
Percent of possible hours of bright sunshine 46.0	54.4	

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1928 for the same month of the year.

REMARKS

The weather during February was very nearly normal in all respects. The average temperature for the month was 25.5 degrees which is 2 degrees higher than the normal. The highest temperature was recorded on the 18th when the thermometer reached 54.5 degrees. The average of the high temperatures observed in February during the last 40 years is 50.3 degrees. The lowest temperature recorded was 1 degree below zero. The average of February minimun readings is 7.9 degrees below zero.

The total rainfall during the month was 3.92 inches. The normal rainfall for February is 3.35 inches. The snowfall was measured as 15 inches and the normal is 14.27 inches. On February 1 we had about 3 inches of snow on the ground. A warm rain on the 6th and 7th removed all the snow. A small amount of snow fell on the 15th but melted during the day. The next snow fell on the 19th, 20th and 21st. The ground was covered from that time till the end of the month. The relative humidity was 77.3 per cent which is slightly less than normal. The number of hours of bright sunshine was 135 which is less than normal for February, the normal being 160 hours. The total wind movement was slightly less than normal being 4005 miles. The normal movement is 4833 miles. No high winds were recorded, the maximum velocity heing 24 miles per hour on the 1st and 2nd. The wind blew from the northwest on 17 days.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 483 March, 1929

Meteorological Observations

FOR

MARCH

1929

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	38.0	3 P	29.0	7 A	33.5	78.5	1.8	sw	67	10				
2	36.5	4 P	16.0	6-30 A	26.3	92.5	0.0	nw	94	21	12 M	9 P	.40	4.0
3	44.0	4 P	24.0	7-30 A	34.0	75.0	7.5	sw	126	14				
4	46.0	1 P	29.0	7-30 A	37.5	83.0	5.0	se	204	16	6 P	12 P	.16	
5	38.5	6 P	35.0	6 A	36.7	91.0	0.0	n	156	20	0 A	12 P	.68	
6	42.0	4-30 P	33.2	8 A	37.6	54.0	10.0	nw	415	30	0 A	3 A	.22	
7	37.5	5 A	23.0	7 P	30.3	76.0	6.0	w	318	35	7 A	10 A	.10	0.5
8	26.0	4 P	14.0	7 A	20.0	54.5	10.0	w	493	33				
9	33.0	2 P	10.0	12 P	26.3	57.0	4.5	sw	296	33				
10	30.2	8 P	3.5	8 A	16.8	51.0	7.0	w	333	23				
11	29.0	0 A	20.0	8 A	24.5	83.5	0.5	nw	122	11	11 A	1 P	T	T
12	61.0	3 P	22.0	7 A	41.5	54.5	8.5	w	75	14				
13	67.5	4 P	39.0	6 A	53.3	62.5	7.0	se	80	5	9 P	12 P	.04	
14	42.0	0 A	34.0	12 P	38.0	95.5	0.0	n	78	7	0 A	12 P	1.01	
15	53.5	2-30 P	33.5	5 A	43.5	90.5	2.8	s	41	7	8 P	12 P	.02	
16	52.0	3-30 P	37.0	12 P	44.5	80.5	0.2	nw	101	26	0 A	8 A	.02	
17	37.0	2 P	24.0	10 P	30.5	52.0	10.5	nw	525	30				
18	46.0	4-30 P	22.5	5-30 A	34.3	47.5	9.0	w	288	33				
19	61.0	2 P	32.0	6-30 A	46.5	63.0	8.0	s	204	16				
20	55.0	12 M	34.0	12 P	45.3	74.5	6.0	s	209	33	5-30 P	6 P	T	
21	60.0	3 P	31.0	6 A	45.5	66.5	5.5	s	238	21				
22	63.0	11-30 A	44.0	7-30 A	53.5	76.5	6.5	s	147	16	10-30 P	12 P	.03	
23	45.0	6 P	41.5	7 A	43.3	93.5	0.0	w	63	6	0 A	8 P	.15	
24	46.5	2 P	33.0	12 P	39.7	72.5	5.5	nw	161	16				
25	46.0	1 P	31.8	2 A	38.9	85.0	0.0	se	172	18	3-30 P	12 P	.09	
26	50.0	3 P	36.0	12 P	43.0	83.5	0.0	w	146	16	0 A	8 A	.25	
27	50.0	5 P	32.5	5-30 A	41.3	57.5	12.7	w	190	18				
28	54.0	1-30 P	32.0	10-30 P	43.0	76.0	1.5	w	238	33	7 A	9 A	.03	
29	48.5	4 P	30.0	11 P	39.3	34.5	12.5	n	255	26				
30	45.0	3 P	27.5	6 A	36.2	69.5	0.5	s	149	16				
31	67.5	3 P	38.0	7 A	47.7	77.5	7.7	sw	105	10				

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*Based on least time required to blow one mile and corrected to conform to three cup anemometer.

MONTHLY SUMMARY

March, 1929	Normal	Extremes
Barometer (Readings reduced to sea level)		
Maximum 30.42, 11th	30.60	30.96, 1904
Minimum 29.01, 5th	29.26	28.47, 1914
Mean semi-daily 29.924	30.02	
Range 1.41	1.35	2.10, 1914; 0.85, 1915
Air Temperature		
Highest 67.5, 13th, 31st	63.9	79.5, 1907, 1921
Lowest 3.5, 10th	5.7	-7.5, 1906
Mean 37.8	34.2	
Monthly range 64.0	58.2	
Highest mean daily 53.5, 22nd		
Lowest mean daily 16.8, 10th		
Mean maximum 46.8		
Mean minimum 28.8		
Greatest daily range 39, 12th		
Least daily range 3.5, 5 th, 23rd		
Precipitation		
Precipitation. In inches 3.20	3.68	7.13, 1899; 0.12, 1915
Snow. In inches 4.5	8.11	27, 1899; 0, 1921
Maximum precipitation in 24 hrs. 1.01, 14th		
Number of days on which .01 or more inches of rain fell 14	11	17, 1890, 1913; 3, 1915
Wind (miles)		
Total movement 6089	5738	7485, 1911; 3006, 1905
Greatest daily movement 525, 17th		
Least daily movement 41, 15th		
Mean hourly velocity 8.2	7.7	
Maximum velocity for 5 min. 35, 7th (corrected to conform to 3 cup anemometer)	29	39, 1913
Wind (direction)		
Prevailing direction w s w	wnw	
North, days 3		
Northeast, days 0		
East, days 0		
Southeast, days 3		
South, days 6		
Southwest, days 4		
West, days 9		
Northwest, days 6		
Weather		
Mean relative humidity, per cent 71.3	75.0	86.8, 1916; 63.7, 1891
Mean cloudiness, per cent 50.0	51.0	68, 1901; 27, 1915
Number of clear days 7	11	22, 1924; 3, 1901
Number of fair days 12	9	17, 1900; 4, 1895
Number of cloudy days 12	11	21, 1901; 1, 1915
Number of hours bright sunshine 156.7	201	292, 1924; 93, 1901
Percent of possible hours of bright sunshine 42.0	54.4	

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1928 for the same month of the year.

REMARKS

The season at the end of March is well advanced around Amherst. There was very little snow on the ground at the beginning of the month and it was practically all removed by the rain on the 6th and 7th. The frost went out of the ground early and country roads are fairly well dried out by the end of the month. Only 4.5 inches of snow fell during the month, while the normal snowfall for March is 8 inches. In 1899 and 1921 27 inches of snow fell in March. The total precipitation for the month was 3.20 inches, and the normal is 3.68 inches. The number of hours of bright sunshine was only 156.7, while the normal amount for March is 201 hours. The mean temperature for the month was 37.8 degrees which is 3.6 degrees higher than normal. The highest temperature was 67.5 degrees on the 13th and 31st. The lowest was 3.5 degrees on the 10th. The wind movement was 6087 miles which is slightly higher than normal, the normal being 5738 miles. The prevailing direction was west southwest. The barometer showed a range of 1.41 inches compared with a normal of 1.35 inches, the maximum and minimum both being slightly lower than normal.

C. I. GUNNESS,
Meteorologist.

L. O. JONES
Observer.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 484 April, 1929

Meteorological Observations
FOR
APRIL
1929

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	55.0	7 P	40.0	12 P	47.5	91.5	0.0	se	170	33	7 A	7 P	.08	
2	45.0	3-30 P	24.0	6 A	34.5	45.0	12.7	nw	462	35				
3	57.0	3-30 P	31.0	0 A	44.0	51.0	12.8	w	103	12				
4	63.0	4 P	35.0	1-30 A	49.0	83.0	4.5	sw	62	10	4 P	7 P	.12	
5	65.0	2 P	39.5	6 A	52.2	78.0	3.0	s	100	17	10-30 P	12 P	.14	
6	47.5	5 P	39.0	6 A	43.2	82.0	0.0	n	107	10	0 A	8 A	.30	
7	84.0	4 P	37.0	2 A	60.5	80.0	7.5	w	84	14	9-30 A	10 A	T	
8	86.5	3 P	57.0	6-30 A	71.7	72.5	8.5	sw	183	22	9-30 P	12 P	.08	
9	71.5	4 P	54.0	12 P	62.8	65.0	7.0	w	122	11				
10	54.0	0 A	28.0	12 P	33.6	90.0	0.0	nw	136	17	5-30 A	5 P	.49	3.0
11	50.0	3 P	22.0	5 P	36.0	58.0	13.2	e	157	14				
12	37.0	1 P	33.0	12 P	35.0	86.0	0.0	n	168	17	1 A	12 P	1.55	0.5
13	37.0	1 P	31.0	6 A	34.0	74.5	0.0	ne	158	12	0 A	12 P	.03	T
14	36.0	5 P	29.0	6-30 A	32.5	80.5	0.3	w	56	4	0 A	12 M	.12	2.0
15	46.5	4 P	33.5	6 A	40.0	70.0	0.3	ne	93	16				
16	39.0	11-30 A	35.0	6 P	37.0	81.5	0.0	n	334	26	7 A	12 P	.89	T
17	43.0	4 P	36.0	2 A	39.5	80.0	0.0	nw	360	22	0 A	12 P	.70	
18	44.5	2 P	36.5	10-30 P	40.5	66.0	0.6	w	312	25				
19	54.0	4 P	38.0	0 A	46.0	55.0	8.5	nw	335	25				
20	49.5	11 A	39.0	6 A	44.3	85.5	0.0	se	78	6	11 A	12 P	.53	
21	42.5	8 A	36.0	12 P	39.3	87.5	0.0	n	136	12	0 A	12 P	.89	
22	48.0	6 P	33.0	6 A	40.5	86.5	1.2	n	212	16	0 A	2 P	.15	T
23	56.0	4 P	27.5	5-30 A	41.7	42.0	13.2	w	218	30				
24	64.0	3 P	30.0	5-30 A	47.0	41.5	13.0	w	149	18				
25	58.0	5-30 P	43.0	5 A	50.5	81.0	0.0	s	170	23	8 A	12 P	.27	
26	68.0	1 P	48.0	12 P	58.0	67.0	4.5	sw	278	21	0 A	4 A	.04	
27	68.5	5 P	37.0	6 A	52.7	41.0	13.0	s	121	11				
28	60.5	2-30 P	44.0	4-30 A	52.2	62.5	2.7	se	218	18	6 P	10 P	.51	
29	53.0	0 A	39.0	12 P	46.0	49.5	2.8	w	378	33				
30	58.0	5 P	33.5	6 A	45.7	37.0	12.5	w	318	26				

*Based on least time required to blow one mile and corrected to conform to three cup anemometer.

MONTHLY SUMMARY

April, 1929		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.39, 3rd	30.48	30.71, 1911
Minimum	28.99, 17th	29.41	29.14, 1891
Mean semi-daily	29.915	29.99	
Range	1.40	1.08	1.42,1891,1907;0.72,1919
Air Temperature			
Highest	86.5, 8th	79.5	88.5, 1896
Lowest	22.0, 11th	21.6	8.5, 1923
Mean	45.2	45.8	
Monthly range	64.5	57.8	
Highest mean daily	71.7, 8th		
Lowest mean daily	32.5, 14th		
Mean maximum	54.7		
Mean minimum	36.3		
Greatest daily range	47, 7th		
Least daily range	4.0, 12th, 16th		
Precipitation			
Precipitation. In inches	6.89	3.27	6.59, 1914; 0.76, 1892
Snow. In inches	5.5	2.32	11, 1891; 0, 1910
Maximum precipitation in 24 hrs.	1.55, 12th		
Number of days on which .01 or more inches of rain fell	17	10	18, 1909; 3, 1892
Wind (miles)			
Total movement	5778	5436	8208, 1908; 3853, 1917
Greatest daily movement	462, 2nd		
Least daily movement	56, 14th		
Mean hourly velocity	8.0	7.5	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	35, 2nd	29	39, 1916
Wind (direction)			
Prevailing direction	w	wnw	
North, days	5		
Northeast, days	2		
East, days	1		
Southeast, days	3		
South, days	3		
Southwest, days	3		
West, days	9		
Northwest, days	4		
Weather			
Mean relative humidity, per cent	69.0	69.6	81.2, 1916; 54.5, 1892
Mean cloudiness, per cent	60.0	49.2	75, 1901; 34, 1925, 1927
Number of clear days	7	11	19, 1911; 3, 1898, 1902
Number of fair days	7	10	18, 1915; 2, 1894, 1901
Number of cloudy days	16	9	22, 1901; 3, 1899, 1924
Number of hours bright sunshine	142.0	221	296, 1911; 103, 1901
Percent of possible hours of bright sunshine	35.0	55.0	
Frosts after the 15th,	23rd		
Thunder and lightning	7th, 26th		

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1928 for the same month of the year.

REMARKS

The weather during April was abnormal in a number of respects. The outstanding features were the high temperatures during the first week followed by very low temperatures during the middle of the month and the heavy rainfall and lack of sunshine. The highest temperature was 86.5 degrees on the 8th. This is the highest temperature recorded at this station for a date as early as April 8. A temperature of 88.5 degrees was recorded on April 16 in 1896. The mean temperature during the first week in April was 50.3 degrees which is 8 degrees higher than normal. The mean temperature during the second and third weeks were 5.4 and 6.8 degrees, respectively, lower than normal and during the last week the mean temperature was normal. The mean temperature during the month was 45.2 degrees which is only .6 degrees less than normal. The lowest temperature was 22 degrees on the 11th which is normal for April. The total precipitation during the month was 6.89 inches which is the highest recorded for April at the station. The nearest approach to this maximum was reached in 1914 when 6.59 inches fell. The normal rain-fall for April is 3 27 inches. A total of 5.5 inches of snow fell. Rain fell on 18 days during the month.

There was recorded only 142 hours of bright sunshine or 35 per cent of the possible amount for April. The normal is 221 hours or 55 per cent of the possible amount. The mean cloudiness for the month was 60 per cent while the normal is 49 per cent. The mean relative humidity was 69 per cent which is .6 per cent less than normal. The total wind movement for the month was 5778 miles which is slightly higher than normal. The highest wind was observed on the 2nd when a velocity of 35 miles was recorded and a total wind movement for the 24 hours was 462 miles. The prevailing direction was West. The barometer showed a range of 1.40 inches with a maximum of 30.39 on the 3rd and a minimum of 28.99 on the 17th. Thunder and lightning was observed on the 7th and 26th.

Vegetation was advanced very rapidly during the first week of the month but little progress was made during the second and third weeks. At the end of the month fruit trees are in a normal state of advance. Field work is very much retarded due to the excess of rain and low temperature.

C. I. GUNNESS,
Meteorologist.

L. O. JONES
Observer.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series | Bulletin No. 485 | May, 1929

Meteorological Observations

FOR

MAY

1929

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	72.0	1-30 P	42.5	3 A	57.2	66.0	12.6	se	209	21				
2	74.5	3 P	55.0	5 A	64.7	79.0	6.0	se	159	14	4 P	12 P	.25	
3	67.5	2-30 A	43.5	12 P	55.5	59.7	1.3	s	410	26	0 A	5 A	1.00	
4	61.0	4-30 P	38.5	5 A	49.7	49.0	8.4	s	287	20				
5	68.0	1-30 P	44.0	12 P	52.5	67.0	4.2	s	208	24	3 P	4-30 P	.30	
6	67.0	2 P	36.5	5 A	51.7	70.0	9.0	s	121	16	5 P	12 P	.58	
7	58.5	12 M	42.0	12 P	50.2	66.3	7.0	w	264	30	0 A	5-30 A	.14	
8	52.0	5 P	37.0	5 A	44.5	52.0	8.0	w	311	32				
9	55.5	5 P	36.5	1 A	46.0	50.3	5.0	w	126	17				
10	66.0	3-30 P	31.5	5 A	48.7	45.3	13.5	nw	84	10				
11	70.5	3 P	35.0	6 A	52.7	44.3	11.0	s	175	21				
12	73.5	2 P	49.0	4 A	61.2	64.0	2.5	se	290	22	3 P	4-30 P	.03	
13	67.0	12-30 P	44.0	12 P	55.5	45.7	9.0	n	167	18				
14	60.0	12 M	37.0	5 A	48.5	65.7	0.0	w	94	15	1 P	12 P	.54	
15	76.5	1 P	47.0	1 A	61.7	70.7	6.5	sw	100	23	0 A	8 A	.16	
16	79.0	12-30 P	43.0	12 P	61.0	61.0	1.0	sw	252	35	12-30 P	1-30 P	.03	
17	70.0	4-30 P	38.5	5 A	54.2	41.3	13.5	sw	215	12				
18	74.0	4 P	41.0	5 A	57.5	66.7	10.0	se	194	17				
19	61.5	0 A	45.0	12 P	53.2	90.7	0.0	nw	129	17	5-30 A	7 P	.61	
20	61.5	3 P	41.5	6 A	51.5	49.3	8.5	w	182	14				
21	49.0	8 P	42.0	6 A	45.5	87.3	0.0	n	169	15	4 A	12 M	.40	
22	64.0	5 P	39.5	4-30 A	51.7	56.0	12.0	nw	150	19				
23	68.5	2-30 P	33.5	5 A	51.0	45.3	11.5	s	113	13				
24	68.0	1 P	45.0	5 A	56.5	67.0	1.3	s	222	20	1-30 P	10 P	.13	
25	66.5	5-30 P	42.0	5 A	54.2	58.7	13.0	nw	165	20				
26	75.5	4 P	42.0	5 A	58.7	55.7	13.0	sw	53	11				
27	82.5	2 P	43.0	5 A	62.7	64.3	10.5	s	111	15				
28	90.0	5 P	55.5	5-30 A	72.7	60.7	10.0	se	87	8				
29	88.5	1-30 P	65.0	5-30 A	76.7	72.0	8.0	s	68	8	4-30 P	5 P	T	
30	92.0	2 P	65.0	5 A	78.5	64.3	13.0	sw	109	12				
31	88.0	2-30 P	68.0	5 A	78.0	50.3	12.0	w	167	24				

*Based on least time required to blow one mile and corrected to conform to three cup anemometer.

NOTE—Beginning May 1st relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

May, 1929		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.54, 14th	30.38	30.55, 1895
Minimum	29.33, 2nd	29.51	29.16, 1893
Mean semi-daily	30.045	29.95	
Range	1.21	.88	1.16, 1893; 0.60, 1899
Air Temperature			
Highest	92.0, 30th	85.5	94.5, 1911
Lowest	31.5, 10th	30.8	24.0, 1900
Mean	56.6	56.8	
Monthly range	60.5	54.6	
Highest mean daily	78.5, 30th		
Lowest mean daily	44.5, 8th		
Mean maximum	70.0		
Mean minimum	44.1		
Greatest daily range	39.5,27th		
Least daily range	7.0, 21st		
Precipitation			
Precipitation. In inches	4.17	3.63	6.91, 1901; 0.48, 1903
Maximum precipitation in 24 hrs.	1.25, 2nd, 3rd		
Number of days on which .01 or more inches of rain fell	12	12	20, 1901; 5, 1903
Wind (miles)			
Total movement	5417	4540	5946, 1907; 2180, 1894
Greatest daily movement	410, 3rd		
Least daily movement	53, 26th		
Mean hourly velocity	7.3	6.1	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	35, 16th	25	35, 1912
Wind (direction)			
Prevailing direction	sw	w	
North, days	2		
Northeast, days	0		
East, days	0		
Southeast, days	5		
South, days	9		
Southwest, days	5		
West, days	6		
Northwest, days	4		
Weather			
Mean relative humidity, per cent	60.8	70.7	83.9, 1927; 59.3, 1891
Mean cloudiness, per cent	48	51.5	70, 1901; 30, 1923
Number of clear days	11	10	20, 1923; 0, 1927
Number of fair days	14	11	17, 1907, 1926; 5, 1923
Number of cloudy days	6	10	20, 1927; 3, 1903, 1922
Number of hours bright sunshine	241.3	250.1	334, 1922; 137, 1927
Percent of possible hours of bright sunshine	53.3	55.2	
Thunder and lightning	24th, 29th, 30th		
Frosts	10th, 23rd		
Last frost	23rd	12th	J'e3, 1908; Apr.23, 1904

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1928 for the same month of the year.

REMARKS

The weather was cold and wet during the first part of the month so that farm operations were badly delayed. During the latter half of the month, however, the weather has been very favorable with the result that vegetation has advanced rapidly and the end of the month finds the season normal. The outstanding feature was the hot spell during the last week of the month. The highest temperature was recorded on the 30th when the mercury reached 92 degrees. This was exceeded in May 1911 when a maximum of 94.5 degrees was reached. It is, however, very unusual to have such an extended heat wave at this early season. The mean temperature for the month was 56.6 degrees which is only .2 degrees lower than usual. The very low temperature at the beginning of the month was compensated for by the unusually high temperature at the end of the month. Killing frosts on low land were reported on the 10th and 23rd. The lowest temperature was 31.5 degrees on the 10th. The range in temperature was 60.5 degrees while the normal range for the month is 54.6 degrees. The precipitation was 4.17 inches. The normal rainfall for May is 3.63 inches. The highest rainfall recorded in May was 6.91 inches in 1901; the least was in 1903 when only 0.48 inches fell. Rain fell on 12 days which is normal for May. The wind movement was 5417 miles which is well above the average, the normal being 4540 miles. The highest velocity recorded was 35 miles per hour on the 16th. The prevailing wind direction was south west. The relative humidity was 60.8 per cent. A total of 241 hours of bright sunshine was recorded. This is 9 hours less than the normal for May. Distant thunder and lightning were observed on the 24th, 29th and 30th. The barometer showed more than the usual range having a maximum of 30.54 on the 14th and a minimum of 29.33 on the 2nd.

C. I. GUNNESS,
Meteorologist.

L. O. JONES
Observer.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series | Bulletin No. 486 | June, 1929

Meteorological Observations

FOR

JUNE

1929

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	73.0	2-30 P	53.0	12 P	63.0	53.7	12.3	nw	237	24				
2	60.0	3 P	41.0	12 P	50.5	52.3	7.0	nw	259	25				
3	65.5	4-30 P	35.0	4 A	50.5	60.7	9.3	nw	122	14				
4	68.0	5 P	41.5	5 A	59.7	60.7	12.0	nw	109	15				
5	72.5	2 P	41.0	3 A	56.7	72.7	7.0	s	145	18	6-30 P	9 P	.26	
6	73.0	5 P	44.5	5 A	58.7	57.0	15.0	sw	70	8				
7	77.0	10-30 A	47.5	5-30 A	62.2	67.3	6.5	sw	181	18	11-30 A	12-30 P	.01	
8	74.5	4-30 P	46.0	5-30 A	60.2	61.3	12.0	w	117	11				
9	77.5	3-30 P	45.5	5 A	61.5	55.3	15.0	nw	89	10				
10	78.0	3 P	45.5	5-30 A	61.7	57.7	15.0	e	101	11				
11	86.0	4 P	41.5	6 A	63.7	56.7	13.0	sw	78	11				
12	87.0	1-30 P	57.0	5-30 A	72.0	55.3	11.5	se	176	18				
13	90.0	4 P	57.5	5 A	73.7	71.7	8.5	se	120	10				
14	89.0	3 P	64.0	5 A	76.5	76.0	5.5	s	79	11				
15	81.0	12-30 P	65.0	4-30 A	73.0	82.0	3.6	s	79	9	2-30 A	8-30 A	.44	
16	84.0	5 P	58.0	7 A	71.0	65.3	10.1	w	60	11				
17	89.0	2-30 P	53.5	5 A	71.2	61.0	10.9	nw	56	11				
18	92.0	3 P	61.5	4-30 A	76.7	64.3	6.6	sw	43	11				
19	91.5	3 P	66.5	5 A	79.0	65.0	8.0	w	99	11				
20	79.5	1-30 P	62.0	12 P	73.0	73.0	2.7	se	113	11	3-30 A	5-15 A	.20	
21	85.5	4 P	59.0	5 A	72.2	65.0	6.8	se	107	8				
22	83.0	4 P	63.5	6-30 A	73.2	82.3	3.9	se	89	07	12-15 A	12-45	0.14	
23	85.0	5 P	64.5	5 A	74.7	80.0	2.7	se	118	10				
24	86.0	2-30 P	68.0	4-30 P	77.5	79.7	4.0	se	77	12	3-20 P	5-30 P	1.15	
25	82.5	3 P	68.0	12 P	75.2	85.0	1.4	s	115	18	6 P	11 P	0.23	
26	77.0	5 P	56.0	12 P	66.5	56.3	14.5	w	170	16				
27	81.0	5 P	56.0	5 A	68.5	65.0	14.8	nw	75	9	2 A	2-30 A	0.02	
28	76.0	1 P	54.5	6 A	65.2	77.7	1.9	se	100	16	2 P	7 P	0.61	
29	69.5	5 P	59.0	5 A	64.2	69.0	2.9	w	232	26				
30	79.0	1 P	46.5	4 A	62.7	60.7	8.5	sw	112	16				

*Based on least time required to blow one mile and corrected to conform to three cup anemometer.

NOTE—Beginning May 1st relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

June, 1929		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.16, 9th	30.31	30.54, 1889
Minimum	29.49, 29th	29.56	29.24, 1902
Mean semi-daily	29.911	29.961	
Range	.67	0.75	1.27, 1902; 0.52, 1916
Air Temperature			
Highest	92.0, 18th	91.1	101, 1919
Lowest	35.0, 3rd	40.0	34, 1891
Mean	67.1	63.7	
Monthly range	57.0	51.2	
Highest mean daily	79.0, 19th		
Lowest mean daily	50.5, 2nd, 3rd		
Mean maximum	79.8		
Mean minimum	54.1		
Greatest daily range	44.5,11th		
Least daily range	13.0, 20th		
Precipitation			
Precipitation. In inches	3.06	3.54	9.68, 1922; 0.76, 1908
Maximum precipitation in 24 hrs.	1.15, 24th		
Number of days on which .01 or more inches of rain fell	9	10	17, 1922; 4, 1908
Wind (miles)			
Total movement	3528	3584	4571, 1908; 1409, 1906
Greatest daily movement	259, 2nd		
Least daily movement	43, 18th		
Mean hourly velocity	4.9	5	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	26, 29th	23	35, 1922
Wind (direction)			
Prevailing direction	sw	wsw	
North, days	0		
Northeast, days	0		
East, days	1		
Southeast, days	8		
South, days	4		
Southwest, days	5		
West, days	5		
Northwest, days	7		
Weather			
Mean relative humidity, per cent	66.3	73.9	85.9, 1922; 65.3, 1891
Mean cloudiness, per cent	44	50.1	71, 1903; 28, 1908
Number of clear days	11	9	22, 1908; 1, 1907, 1926
Number of fair days	11	13	23, 1912; 4, 1895, 1903
Number of cloudy days	8	8	22, 1903; 1, 1923
Number of hours bright sunshine	252.9	257.4	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	55.0	56	
Thunder and lightning	15th, 22nd, 24th 25th		

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1928 for the same month of the year.

REMARKS

The weather during the month of June was seasonable in most respects. The weather was cool during the first few days with a light frost on the 3rd, and a minimum temperature in the shelter of 35 degrees. Frosts have been observed at as late a date previously, and in 1891 a minimum temperature of 34 degrees was recorded on the 5th. We had hot weather during the middle of the month with a maximum of 92 degrees on the 18th. The normal maximum for June is 91.1 degrees but in 1919 the thermometer reached 101 degrees. The mean or average temperature for the month was 67.1 degrees which is 3.4 degrees higher than normal.

The total rainfall during the month was 3.06 inches. The normal rainfall for June is 3.54 inches. As extremes might be mentioned that in 1922 there was a total rainfall of 9.68 inches in June. In 1908 only 76 inches fell. Very little rain fell during the first two weeks of the month, with the result that crops suffered somewhat but good rains in the last two weeks have helped all crops. The rainfall during the months of April, May and June of 1929 is 14.12 inches, while the normal rainfall for that period is 10.44 inches. A heavy rain shower on the 24th gave a total of 1.15 inches. Of this amount ½ inch fell in a period of five minutes. The shower was accompanied by a severe electrical storm, Page laboratory being struck by lightning. Rain fell on 9 days as compared to 10 days as a normal and 17 days in 1922 and 4 days in 1908. The total wind movement for the month was 3528 miles. The normal movement is 3584 for June. No high wind was recorded, the maximum velocity being 26 miles per hour on the 29th. The prevailing wind direction was southwest. The mean relative humidity was 66.3 percent and the number of hours of sunshine was 253. The normal sunshine for June is 257.4 hours.

C. I. GUNNESS,
Meteorologist

D. F. MURPHY,
Observer.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 487 July, 1929

Meteorological Observations

FOR

JULY

1929

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	81.0	3 P	59.0	5 A	70.0	71.0	5.2	se	100	12				
2	74.0	1 P	51.5	12 P	62.7	56.3	9.4	w	224	33				
3	69.5	4 P	45.5	5-30 A	57.5	53.7	5.2	w	181	30				
4	80.5	4 P	45.0	5 A	62.7	66.6	1.8	se	149	20				
5	74.5	1 P	58.0	12 P	66.2	81.6	0.1	se	170	10	10-30 A	4 P	0.17	
6	87.5	3 P	56.5	5 A	72.0	75.6	8.3	se	54	7				
7	90.5	3 P	69.0	2 A	79.7	79.3	6.0	se	163	14				
8	86.0	2 P	71.0	4 A	78.5	70.6	6.2	nw	208	21				
9	85.0	4 P	59.0	4 A	72.0	72.6	7.1	se	70	12	10 P	10-15 P	T	
10	83.0	10 A	66.0	12 P	74.5	75.3	3.7	sw	106	18	12 M	2-30 P	0.03	
11	88.5	4-30 P	57.0	5 A	72.7	56.6	10.8	nw	79	12				
12	87.5	3 P	55.5	5 A	71.5	61.3	8.8	s	94	10				
13	87.0	4 P	55.0	5-30 A	71.0	62.7	8.4	se	123	7				
14	79.0	1 P	58.0	12 P	68.5	67.7	4.8	se	160	26	12-30 P	1-30 P	0.34	
15	82.5	5 P	48.5	5 A	65.5	63.3	11.1	n	104	11				
16	85.0	5 P	49.0	5 A	67.0	67.3	9.8	s	57	8				
17	86.0	3 P	53.0	5-30 A	69.5	61.3	7.3	s	75	8				
18	85.5	3 P	58.0	5 A	71.7	62.0	6.3	se	158	16				
19	72.0	3 P	53.0	12 P	62.5	71.7	1.6	nw	146	14	10 P	3 A	0.03	
20	77.5	3 P	46.0	5 A	61.7	52.6	12.5	nw	154	18				
21	83.0	4-30 P	46.0	5 A	64.5	58.0	9.2	sw	54	7				
22	83.0	4 P	49.0	4 A	66.0	60.3	8.4	se	90	8				
23	91.0	5 P	58.0	3 A	74.5	69.3	9.0	s	101	12				
24	89.5	3 P	65.0	5 A	77.2	59.3	8.7	w	165	18				
25	72.0	0 A	55.0	12 P	63.5	86.0	0.6	ne	80	8	7-30 A	5 P	0.11	
26	82.0	6 P	54.0	1 A	68.0	64.3	7.8	nw	69	12				
27	92.0	5 P	59.0	5 A	75.5	65.0	8.7	se	112	10				
28	94.0	2 P	68.0	4 A	81.0	69.6	6.6	se	178	18				
29	90.5	5 P	66.0	12 P	78.2	71.0	6.7	sw	138	9	7 A	9 A	0.02	
30	89.0	5 P	63.0	5 A	76.0	55.3	10.0	w	113	16				
31	86.5	5 P	57.0	5 A	71.7	57.3	9.1	sw	93	9				

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*Based on least time required to blow one mile and corrected to conform to three cup anemometer.

NOTE—Beginning May 1st relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

July, 1929		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.41, 21st	30.28	30.50, 1892
Minimum	29.57, 2nd	29.60	29.39, 1909
Mean semi-daily	30.003	29.972	
Range	.84	0.68	0.97, 1892; 0.51, 1895, 1899
Air Temperature			
Highest	94.0, 28th	93.9	104, 1911
Lowest	45.0, 4th	45.5	34, 1889
Mean	70.1	70.6	
Monthly range	49.0	48.4	
Highest mean daily	81.0, 28th		
Lowest mean daily	57.5, 3rd		
Mean maximum	83.7		
Mean minimum	56.6		
Greatest daily range	37.0, 21st		
Least daily range	15.0, 8th		
Precipitation			
Precipitation. In inches	.70	4.33	14.51, 1897; 1.55, 1894
Maximum precipitation in 24 hrs.	.34, 14th		
Number of days on which .01 or more inches of rain fell	6	11	20, 1915; 4, 1924
Wind (miles)			
Total movement	3768	3435	5097, 1909; 1109, 1894
Greatest daily movement	224, 2nd		
Least daily movement	54, 6th, 21st		
Mean hourly velocity	5	4.6	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	33, 2nd	24	39, 1908, 1915
Wind (direction)			
Prevailing direction	s	sw	
North, days	1		
Northeast, days	1		
East, days	0		
Southeast, days	12		
South, days	4		
Southwest, days	4		
West, days	4		
Northwest, days	5		
Weather			
Mean relative humidity, per cent	66.0	75.6	88.8, 1927; 64.8, 1893
Mean cloudiness, per cent	40	50.1	69, 1914; 31, 1924
Number of clear days	3	9	22, 1923; 0, 1915
Number of fair days	23	14	24, '09, '21; 5, '89, '23, '28
Number of cloudy days	5	8	18, 1889; 0, 1910
Number of hours bright sunshine	219.2	266	371, 1910; 182, 1889
Percent of possible hours of bright sunshine	51.0	58	
Thunder and lightning			

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1928 for the same month of the year.

REMARKS

The outstanding feature of the weather during July was the lack of rain resulting in serious damage to crops. The rainfall during June was less than normal and this with the very small amount of rain which fell in July produced a serious drouth. The normal rainfall for July is 4.33 inches. The rain during the past month was .70 inches. The least rainfall previously recorded in July was in 1894 when only 1.55 inches fell. The heaviest rainfall recorded in July was in 1897 with a total of 14.51 inches.

The temperature during the month was practically normal. The mean was 70.1 degrees. The normal mean is 70.6 degrees. The highest temperature was 94 degrees on the 28th and the lowest was 45 degrees on the 4th. These are practically normal values. The highest temperature recorded at this station for July was in 1911 with a reading of 104 degrees. The lowest was 34 degrees in 1889. The total wind movement was 3768 miles as compared with a normal movement of 3436 miles. The highest velocity was reached on the 2nd with a maximum of 33 miles per hour. The prevailing direction for the month was South. The normal direction for July is Southwest. The mean relative humidity was 66 per cent, and the hours of bright sunshine was 219.2 hours. The normal sunshine for July is 266 hours.

C. I. GUNNESS,
Meteorologist

D. F. MURPHY,
Observer.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 488 August, 1929

Meteorological Observations

FOR

AUGUST

1929

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	88.5	3 P	61.0	5 A	74.8	71.6	6.0	se	108	21				
2	77.5	5-30 P	49.5	5-30 A	63.5	51.3	7.6	nw	166	16				
3	80.5	12 M	47.0	6 A	63.7	63.0	2.8	se	91	13	3-30 P	10-30 P	0.59	
4	69.5	3 P	54.0	11 P	61.7	61.0	3.5	w	259	33				
5	68.0	3 P	53.0	5 A	60.5	58.6	2.1	w	259	18	4 P	4-30 P	0.01	
6	78.5	4 P	52.0	5 A	65.2	51.6	7.6	w	185	16				
7	78.0	5 P	49.0	5 A	63.5	57.0	8.5	nw	97	14				
8	78.5	5 P	45.0	5 A	61.7	52.7	5.9	sw	45	9				
9	83.5	6 P	55.0	6 A	69.2	71.7	7.0	s	94	10	2-30 A	6 A	0.31	
10	84.0	3 P	60.0	7 A	72.0	85.7	2.3	se	64	18	5 P	7 P	0.05	
11	71.5	3 P	65.0	7 A	68.2	89.7	1.0	se	134	9	6-30 A	10 A	0.15	
12	90.0	4 P	65.5	11 P	77.7	71.7	9.1	w	76	11				
13	76.0	2 P	63.0	5 A	69.5	85.7	0.7	nw	114	9	6-30 P	8 P	0.03	
14	81.5	4 P	66.0	2 A	73.7	74.7	3.4	se	104	14				
15	84.5	4 P	62.0	12 P	73.2	70.0	5.2	w	133	13	1 A	7 A	0.10	
16	74.5	5 P	53.0	5 A	63.7	65.3	5.9	w	185	18				
17	83.0	3 P	46.0	0 A	64.5	59.0	8.0	se	80	11				
18	87.0	4 P	56.0	5 A	71.5	65.3	4.5	s	101	16				
19	70.5	5 P	52.0	12 P	61.2	65.7	0.6	nw	166	14	2-30 A	6 A	0.24	
20	72.5	4 P	45.0	5-30 A	58.7	58.3	4.0	nw	115	11				
21	81.0	4 P	41.0	5-30 A	61.0	58.7	8.4	sw	51	8				
22	85.0	5 P	49.0	5 A	67.0	66.3	5.4	se	126	14				
23	74.0	10 A	62.0	5 A	68.0	83.7	0.0	se	158	10	1 P	9-30 P	0.06	
24	81.5	5 P	55.0	12 P	73.7	57.3	6.6	nw	188	21				
25	85.5	3 P	49.0	5 A	67.2	58.7	9.2	n	98	9				
26	89.0	2 P	48.0	5 A	68.4	54.7	8.0	se	70	11				
27	84.0	1 P	59.0	5 A	71.5	63.3	1.2	se	110	18				
28	78.5	3 P	47.0	5 A	62.7	57.0	7.9	nw	149	12				
29	71.5	1 P	45.0	4 A	58.2	64.7	2.7	nw	101	14				
30	67.0	3 P	54.0	1 A	60.5	64,3	0.0	n	123	10				
31	80.0	3 P	51.0	5 A	65.5	55.3	6.5	w	89	14				

*Based on least time required to blow one mile and corrected to conform to three cup anemometer.

NOTE—Beginning May 1st relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

August 1929		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.30, 21st	30.32	30.48, 1918
Minimum	29.46, 4th	29.63	29.18, 1890
Mean semi-daily	29.968	29.972	
Range	.84	0.69	1.10, 1890; 0.44, 1894
Air Temperature			
Highest	90.0, 12th	91.3	100, 1918
Lowest	41.0, 21st	42.9	37, 1894, 1908
Mean	66.5	68.4	
Monthly range	49.0	48.4	
Highest mean daily	77.7, 12th		
Lowest mean daily	58.2, 29th		
Mean maximum	79.1		
Mean minimum	53.9		
Greatest daily range	41.0, 26th		
Least daily range	6.5, 11th		
Precipitation			
Precipitation. In inches	1.54	4.24	8.28, 1915; 31, 1894
Maximum precipitation in 24 hrs.	.59, 3rd		
Number of days on which .01 or more inches of rain fell	9	10	16, 1892; 4, 1899
Wind (miles)			
Total movement	3839	3099	4271, 1910; 1920, 1894
Greatest daily movement	259, 4th, 5th		
Least daily movement	45, 8th		
Mean hourly velocity	5.1	4.2	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	33, 4th	21	35, 1915
Wind (direction)			
Prevailing direction	wsw	sw	
North, days	2		
Northeast, days	0		
East, days	0		
Southeast, days	10		
South, days	2		
Southwest, days	2		
West, days	7		
Northwest, days	8		
Weather			
Mean relative humidity, per cent	65.0	78.4	87.3, 1927; 69.9, 1894
Mean cloudiness, per cent	47	49.4	67, 1901; 27, 1923
Number of clear days	0	9	17, 1921; 0, 1915
Number of fair days	18	13	25, 1912; 5, 1893
Number of cloudy days	13	9	18, '01, '28; 2, '10, '23
Number of hours bright sunshine	151.6	236	317, 1921; 152, 1915
Percent of possible hours of bright sunshine	35.0	55	
Thunder and lightning	19th, 23rd		

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1928 for the same month of the year.

REMARKS

The outstanding feature of the August weather was the continued drouth. The total rainfall for the month was 1.54 inches whereas the normal rainfall for the month is 4.24 inches. The rainfall for the two months of July and August of this year is 2.24 inches while normally we get 8.57 inches of rain during that time. Lawns and crops have suffered considerably in this region and the water shortage is acute in many western towns of the state. It is interesting to note that in 1894 only .31 inches of rain fell in August and that year only 1.55 inches fell in July.

The mean temperature for the month was 66.5 degrees as compared with a normal of 68.4 degrees. The highest temperature was recorded on the 12th when the thermometer reached 90 degrees. The normal maximum for August is 91.3 degrees but in 1918 the thermometer reached 100 degrees. The lowest temperature was 41 degrees on the 21st. In both 1894 and 1908 a minimum of 37 degrees was recorded. A total of 151.6 hours of sunshine was recoreed as compared with a normal of 236 hours. The wind movement for the month was 3839 miles. The normal is 3099 miles. A maximum velocity of 33 miles per hour was reached on the 4th.

C. I. GUNNESS,
Meteorologist

D. F. MURPHY,
Observer.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 489 September, 1929

Meteorological Observations

FOR

SEPTEMBER

1929

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	87.5	1 P	57.0	2 A	72.3	63.0	4.2	nw	139	18				
2	93.5	3 P	58.0	6 A	75.8	60.0	6.5	sw	100	21				
3	95.5	2 P	65.0	5 A	80.2	53.0	7.8	w	145	18				
4	97.0	4 P	66.0	12 P	81.5	58.0	7.2	se	114	18				
5	69.0	2 P	64.0	6 A	66.5	83.3	0.0	ne	99	8				
6	76.0	4 P	63.0	7 A	69.5	85.0	0.0	nw	84	11	3-30 A	7 A	0.20	
7	86.5	3 P	64.0	1 A	75.2	81.7	4.2	s	71	21	4-30 P	12 P	0.38	
8	74.5	3 P	68.0	5-30 A	71.2	93.7	0.0	nw	49	8	0 A	6-30 P	1.36	
9	69.0	0 A	63.0	12 P	66.0	94.0	0.0	ne	36	5	6 A	12 P	0.57	
10	86.0	2 P	63.0	5 A	74.5	85.3	1.5	s	104	21	0 A	1 A	0.02	
11	77.0	4 P	46.0	12 P	68.0	63.3	5.2	w	266	26				
12	70.0	6 P	40.0	5 A	55.0	70.0	0.8	sw	47	5				
13	68.5	4 P	44.0	3 A	56.2	83.0	0.0	nw	39	9				
14	79.0	2 P	62.0	0 A	59.0	84.0	1.0	s	111	16	5-30 A	8-30 A	0.20	
15	72.0	5 P	49.0	12 P	60.5	64.7	9.2	w	154	16				
16	76.0	5 P	42.0	6 A	59.0	71.0	8.8	s	89	14				
17	71.0	12 M	57.0	12 P	64.0	86.0	0.2	s	149	21	9 A	9 P	0.39	
18	63.0	1 P	41.0	12 P	52.0	62.0	9.1	nw	148	21				
19	60.0	3 P	36.0	6 A	48.0	54.0	12.0	n	192	21				
20	61.0	5 P	35.0	6 A	48.0	64.7	10.8	nw	122	10				
21	62.0	3 P	36.0	6 A	49.0	54.0	12.9	n	160	11				
22	66.0	4 P	35.0	5 A	50.5	64.0	10.9	e	123	14				
23	73.0	5 P	33.0	6 A	53.0	73.7	10.7	w	39	4				
24	81.0	4 P	33.0	7 A	57.0	70.7	11.5	s	34	8				
25	83.0	3 P	39.0	7 A	61.0	72.7	10.6	s	47	6				
26	82.5	3 P	46.0	6 A	64.2	70.3	7.7	nw	61	10				
27	76.0	3 P	53.0	7 A	64.5	73.7	8.6	n	151	12				
28	75.0	3 P	51.0	6 A	63.0	74.7	6.4	s	87	9				
29	82.0	2 P	59.0	1 A	70.5	83.0	4.5	se	88	13	3 P	8 P	0.50	
30	63.0	0 A	50.0	12 P	56.5	75.3	3.0	n	136	12				

*Based on least time required to blow one mile and corrected to conform to three cup anemometer.

NOTE—Beginning May 1st relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

September, 1929		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.61, 22nd	30.45	30.65, 1924
Minimum	29.74, 10th	29.59	29.32, 1900
Mean semi-daily	30.107	30.068	
Range	.87	0.86	1.20, 1924; 0.57, 1910
Air Temperature			
Highest	97.0, 4th	87.4	97.0, 1895
Lowest	33.0, 23rd, 24th	32.8	24.5, 1914
Mean	63.1	61.6	
Monthly range	64.0	54.6	
Highest mean daily	81.5, 4th		
Lowest mean daily	48.0, 19th		
Mean maximum	75.8		
Mean minimum	50.6		
Greatest daily range	48.0, 24th		
Least daily range	3.0, 9th		
Precipitation			
Precipitation. In inches	3.62	3.79	8.74, 1907; 0.52, 1914
Maximum precipitation in 24 hrs.	1.74, 7th, 8th		
Number of days on which .01 or more inches of rain fell	8	9	15, 1918; 3, 1903
Wind (miles)			
Total movement	3184	3252	4686, 1896; 1414, 1894
Greatest daily movement	266, 11th,		
Least daily movement	34, 24th		
Mean hourly velocity	4.4	4.5	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	26, 11th	22	39, 1915
Wind (direction)			
Prevailing direction	w	wsw	
North, days	4		
Northeast, days	2		
East, days	1		
Southeast, days	2		
South, days	8		
Southwest, days	2		
West, days	4		
Northwest, days	7		
Weather			
Mean relative humidity, per cent	72.4	80.0	89, 1927; 70.7, 1892
Mean cloudiness, per cent	58	48.7	65, 1889; 27, 1908, 1914
Number of clear days	12	9	18, 1891; 2, 1907, 1928
Number of fair days	9	11	19, 1908; 3, 1889
Number of cloudy days	9	10	19, '89, '07, 4, '08, '16
Number of hours bright sunshine	175.3	202.5	255, 1916; 110, 1907
Percent of possible hours of bright sunshine	47.0	54	
Frosts	19th, 20th, 21st, 22nd, 23rd, 24th		
First Frost	19th	19	Aug. 22, '94, '95; Oct. 13, '09
Thunder and lightning	8th, 29th		

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1928 for the same month of the year.

REMARKS

The weather during the month of September has been more nearly normal than the previous months. The severe drouth of the summer months has been broken, although the rainfall for the summer is still much less than normal. The rainfall during September was 3.62 inches compared with a normal of 3.79 inches. The total rainfall since May 1st is 13.09 inches, while the normal precipitation for that period is 19.53 inches. The rainfall in April, however, was 6.89 inches compared with a normal of 3.27 inches. For many crops the rainfall during June, July and August is of great importance. It is interesting to note that the rainfall during these months for the past summer was 5.30 inches. The normal for that period is 12.11 inches. In 1894 the rainfall during these same months was only 4.99 inches.

The temperature was considerable higher than normal, the mean being 63.1 degrees as compared with a normal of 61.6. degrees. The highest temperature was 97 degrees on the 4th. This has been reached only once before during the month of September during the last 40 years. A temperature of 97 degrees was recorded in September 1895. The normal maximum is 87.4 degrees. The lowest temperature was 33 degrees on the 23rd and 24th. The normal minimum is 32.8 degrees. A temperature of 24.5 degrees was recorded in 1914. The first light frost was observed on low land on the 19th. This is the normal time for the first frost in this vicinity. It is interesting to note that the first frost in 1894 and 1895 was on August 22 and in 1909 the first frost recorded was on October 13. There has not been a general killing frost during the month. The amount of bright sunshine was less than normal, being 175.3 hours. The normal number of hours of sunshine is 202.5. The total wind movement for the month was 3184 miles which is practically normal. The highest wind velocity was 26 miles per hour on the 11th.

C. I. GUNNESS,
Meteorologist

D. F. MURPHY,
Observer.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series **Bulletin No. 490** **October, 1929**

Meteorological Observations

FOR

OCTOBER

1929

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	62.0	1 P	48.0	7 A	55.0	62.3	6.1	ne	123	14				
2	54.0	2 P	48.0	5 A	51.0	88.3	0.0	n	182	16	2-30 A	12 P	1.28	
3	58.0	6 A	44.0	12 P	51.0	76.7	0.0	s	142	16	0 A	9 P	0.07	
4	55.0	3 P	44.0	4 A	49.5	61.7	3.1	w	275	21				
5	61.0	3 P	38.0	12 P	49.5	60.0	10.6	sw	132	13				
6	72.0	3 P	32.0	6 A	52.0	69.3	10.2	se	94	11				
7	67.0	12 M	48.0	12 P	57.5	68.7	3.1	s	140	18			T	
8	56.0	1 P	32.0	12 P	44.0	52.7	7.8	w	205	26				
9	52.0	5 P	25.0	7 A	38.5	55.7	11.4	nw	152	33				
10	55.0	3 P	23.0	6-30 A	39.0	53.7	11.0	nw	92	14				
11	64.0	3 P	22.0	1 A	43.0	56.7	11.3	nw	45	10				
12	63.0	1 P	28.0	7 A	45.5	58.7	6.5	s	87	11			T	
13	69.0	1 P	52.0	0 A	60.5	68.0	3.5	w	222	16	8 A	8-30 A	0.01	
14	58.0	12 M	39.0	12 P	48.5	72.3	4.8	nw	80	6	1-30 A	5 A	0.02	
15	63.0	4 P	36.0	4 A	49.5	58.3	6.6	n	94	11	9 A	9-30 A	0.02	
16	71.0	3 P	38.0	7 A	54.5	62.3	9.2	w	95	21	6 A	7 A	0.01	
17	54.0	0 A	36.0	12 P	45.0	43.7	5.2	nw	420	33				
18	49.0	3 P	34.0	6 A	41.5	42.7	11.0	nw	336	21				
19	67.0	4 P	24.0	6 A	45.5	59.3	11.0	se	63	8				
20	75.0	3 P	39.0	7 A	57.0	59.7	10.5	se	104	12				
21	76.0	3 P	43.0	6 A	59.5	81.3	6.0	s	83	14				
22	72.0	3 P	51.0	5 A	61.5	80.7	0.0	e	218	33	7 A	12 P	0.81	
23	68.0	4 P	50.0	12 P	59.0	73.3	8.1	se	251	18	0 A	2-30 A	0.46	
24	64.0	3 P	46.0	8 A	55.0	72.0	5.2	se	137	18				
25	50.0	3 P	39.0	7 A	44.5	66.6	1.5	s	163	26				
26	57.0	3 P	42.0	5 A	49.5	64.0	0.0	s	151	13				
27	72.0	1 P	44.0	7 A	58.0	45.0	8.4	sw	236	35				
28	48.0	1 P	35.0	5 A	41.5	47.0	10.5	nw	307	21				
29	44.0	3 P	27.0	1 A	35.5	61.3	3.6	nw	139	26				
30	40.0	4 P	27.0	2 A	33.5	71.0	0.0	sw	14	1½			T	
31	51.0	2 P	40.0	1 A	45.5	90.7	0.0	w	16	5	6-40 A	12 P	0.07	

*Based on least time required to blow one mile and corrected to conform to three cup anemometer.

NOTE—Beginning May 1st relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

October, 1929		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.68, 10th, 11th	30.53	30.67, 1891, 1895, 1897
Minimum	29.33, 16th, 17th	29.42	29.00, 1926
Mean semi-daily	29.390	30.059	
Range	1.35	1.11	1.47, 1926; 0.76, 1899
Air Temperature			
Highest	76.0, 21st	79.7	90.5, 1908
Lowest	22.0, 11th	23.4	18.0, 1904
Mean	49.0	50.4	
Monthly range	54.0	56.3	
Highest mean daily	61.5, 22nd		
Lowest mean daily	33.5, 30th		
Mean maximum	60.2		
Mean minimum	37.9		
Greatest daily range	43.0, 19th		
Least daily range	.0,2nd		
Precipitation			
Precipitation. In inches	2.75	3.35	8.81, 1911; 0.01, 1924
Maximum precipitation in 24 hrs.	1.28, 2nd.		
Number of days on which .01 or more inches of rain fell	9	8	15, 1913; 1, 1897, 1924
Wind (miles)			
Total movement	4798	4023	5467, 1910; 2540, 1894
Greatest daily movement	346, 18th		
Least daily movement	14, 30th		
Mean hourly velocity	6.4	5.4	
Maximum velocity for 5 min (corrected to conform to 3 cup anemometer)	35, 27th	27	35, 1906, 1916, 1925
Wind (direction)			
Prevailing direction	wsw	w	
North, days	2		
Northeast, days	1		
East, days	1		
Southeast, days	5		
South, days	6		
Southwest, days	3		
West, days	5		
Northwest, days	8		
Weather			
Mean relative humidity, per cent	64	76.9	86.7 1920; 65.5, '91, '92
Mean cloudiness, per cent	55	47.6	64, '90, '00; 18, 1924
Number of clear days	12	8	14, 1897, 1916; 1, 1911
Number of fair days	9	11	17, '24; 5, '94, '96, '98, '03, '17
Number of cloudy days	10	12	19, 1896; 3, 1924
Number of hours bright sunshine	186.2	171.0	232, 1923; 91, 1913
Percent of possible hours of bright sunshine	55	50	
Thunder and lightning			
Frost 9th, 10th, 11th, 12th, 15th, 19th, 28th, 29th, 30th			

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1928 for the same month of the year.

REMARKS

The weather during October was pleasant and seasonable. The mean temperature was slightly lower than usual, being 49 degrees, the normal being 50.4 degrees. The highest temperature was recorded on the 21st when the thermometer reached 76 degrees. The higest temperature usually reached in October is 79.7 degrees while in 1908 a maximum of 90.5 degrees was observed. The lowest temperature was 22 degrees on the 11th. The average lowest temperature for October is 23.4 degrees but 1904 a minimum of 18 degrees was recorded. The rainfall was again less than normal being 2.75 inches. The normal rainfall for October is 3.35 inches. The rainfall for the summer and fall is still deficient and the water supply for many communities and particularly for farmers depending on small springs is not very promising. The total rainfall since May 1 is 15.84 inches while the normal for that period is 22.88 inches. The amount of bright sunshine was greater than usual, being 186.2 hours. The normal for October is 171 hours. In 1923 a total of 232 hours was recorded and in 1913 only 91 hours. The mean relative humidity was 64 percent.

The total wind movement was 4798 miles compared with a normal of 4023 miles. The highest velocity was 35 miles per hour on the 27th.

The barometer showed slightly higher range than usual, giving a maximum of 30.68 inches on the 10th and 11th and a minimum of 29.33 on the 16th and 17th. The normal readings are 30.53 and 29.42 respectively.

C. I. GUNNESS,
Meteorologist

D. F. MURPHY,
Observer.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 491 November, 1929

Meteorological Observations

FOR

NOVEMBER

1929

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum.		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	61.0	6 P	48.0	5 A	54.5	93.3	0.0	se	68	7	0 A	7-30 P	0.07	
2	74.0	2 P	54.0	12 P	64.0	70.3	1.7	se	145	21	6 A	11 A	0.02	
3	54.0	0 A	45.0	12 P	49.5	86.3	0.0	w	90	18	5-30 A	12 P	0.43	
4	53.0	2 P	44.0	12 P	48.5	90.3	0.0	w	60	16				
5	51.0	1 P	32.0	12 P	41.5	59.0	6.7	w	253	26				
6	56.0	2 P	31.0	2 A	43.5	57.3	9.3	se	117	13				
7	52.0	2 P	30.0	7 A	41.0	64.3	9.4	w	85	14				
8	50.0	2 P	34.0	6 A	42.0	68.3	3.9	w	103	12				
9	45.0	3 P	35.0	5 A	40.0	63.3	6.1	n	156	18				
10	56.0	3 P	25.0	7 A	40.5	48.3	10.0	s	45	6				
11	46.0	1 A	33.0	8 A	39.5	84.3	0.0	sw	50	3				
12	50.5	2-30 P	36.0	12 P	43.2	89.3	0.0	w	8	3				
13	57.0	2-30 P	33.0	2 A	45.0	81.6	0.4	s	71	10	11 P	12 P	0.01	
14	62.0	4 P	47.0	7 A	54.5	85.3	3.4	sw	36	14	0 A	12 P	0.24	
15	61.0	8 A	43.0	12 P	52.0	75.0	2.5	sw	206	35	2 A	12-30 P	0.45	
16	51.0	3 P	34.0	7-30 A	42.5	42.0	9.7	se	285	16				
17	52.0	3 P	37.0	3 A	44.5	70.0	0.4	se	80	11	12-30 P	12 P	0.16	
18	45.5	3 P	41.0	12 P	43.2	88.7	0.0	n	101	14	0 A	12 P	1.02	
19	51.0	1 P	37.0	7 A	44.0	63.7	2.6	s	203	21	0 A	5-30 A	0.02	
20	43.5	2 P	33.0	3 A	38.2	59.3	4.9	sw	189	16				
21	37.0	3 P	25.0	12 P	31.0	77.3	2.1	w	37	7	0 A	10-30 A	0.12	2
22	33.0	11 A	20.0	12 P	26.5	50.3	2.4	s	133	18				
23	32.0	3 P	7.5	7 A	19.7	76.6	9.5	nw	59	8				
24	30.0	5 P	21.0	0 A	25.5	87.0	0.0	sw	78	21	8 A	8 P	0.11	½
25	36.0	1 P	23.5	5 A	29.7	75.0	5.6	w	198	26				
26	47.0	1 P	20.0	7 A	33.5	67.0	6.1	se	163	16				
27	49.0	2 P	36.0	1 A	42.5	76.3	0.0	s	213	21				
28	40.0	0 A	23.0	12 P	31.5	61.3	5.3	w	234	26	7-30 A	8 A	0.05	½
29	25.0	12 M	14.0	12 P	19.5	65.3	8.2	w	175	26				
30	23.0	3 P	9.0	6 A	16.0	65.0	8.7	sw	242	21				

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*Based on least time required to blow one mile and corrected to conform to three cup anemometer.

NOTE—Beginning May 1st relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

November, 1929		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.51, 1st	30.58	30.86, 1896
Minimum	29.15, 28th	29.34	28.73, 1904
Mean semi-daily	30.041	30.046	
Range	1.36	1.29	1.84, 1904; 0.98, 1890
Air Temperature			
Highest	74.0, 2nd	65.3	75.0, 1924
Lowest	7.5, 23nd	13.8	3.5, 1891
Mean	39.6	38.6	
Monthly range	66.5	51.4	
Highest mean daily	64.0, 2nd		
Lowest mean daily	16.0, 30th		
Mean maximum	47.4		
Mean minimum	31.7		
Greatest daily range	31.0, 10th		
Least daily range	9.0, 3rd, 4th, 24th		
Precipitation			
Precipitation. In inches	2.73	3.45	8.64, 1927; 0.63, 1917
Snow, in inches	3	2.05	9,24;t,89,93,03,12,18,19,22,27
Maximum precipitation in 24 hrs.	1.02, 18th.		
Number of days on which .01 or more inches of rain fell	12	9	22, 1921, 2, 1904
Wind (miles)			
Total movement	3883	4564	5978, 1906; 2589, 1889
Greatest daily movement	285, 16th		
Least daily movement	8, 12th		
Mean hourly velocity	5.4	6.3	
Maximum velocity for 5 min (corrected to conform to 3 cup anemometer)	35, 15th	29	40, 1915
Wind (direction)			
Prevailing direction	sw	w	
North, days	2		
Northeast, days	0		
East, days	0		
Southeast, days	6		
South, days	5		
Southwest, days	6		
West, days	10		
Northwest, days	1		
Weather			
Mean relative humidity, per cent.	71.4	76.3	85.9 1907; 67.8, 1890
Mean cloudiness, per cent	62	53.5	72, '00, '27; 34, 1917
Number of clear days	7	6	15, 1903; 1, 1900, 1911, 1927
Number of fair days	8	9	16, 1912; 4, 1889
Number of cloudy days	15	15	24, 1927; 9, 1890; 1905, 1917
Number of hours bright sunshine	118.9	121.0	182, 1903; 66, 1927
Percent of possible hours of bright sunshine	41	41	
Thunder and lightning			

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1928 for the same month of the year.

REMARKS

The first four days of November were unusually warm with a maximum of 74 degrees on the 2nd. This was exceeded only in 1924 when a maximum of 75 degrees was reached on the 1st and 7th. The normal maximum for November is 65.3 degrees. The lowest temperature observed during the past month was 7.5 degrees on the 23rd. The normal minimum is 13.8 degrees. The lowest temperature observed during November was in 1891 when a minimum of 3.5 degrees was reached. The mean or average temperature for the month was 39.6 degrees which is one degree higher than normal. There was skating on the pond on the 26th. The precipitation during the month was 2.73 inches with a snow fall of 3 inches. There was, however, no snow on the ground at the end of the month. The normal precipitation for the month of November is 3.45 inches so the shortage of rain for the season is still greater than at the end of October. The maximum rainfall observed in November was in 1927 when a total of 8.64 inches fell. The least was 0.63 inches in 1917. Rain fell on 12 days, the normal being rain on 9 days in November. The total number of hours of bright sunshine was 119 which is practically normal, the average being 121 hours. The wind movement was less than normal being 3883 miles. The normal wind movement is 4564 miles. The prevailing direction was south west. The barometer showed slightly greater range than usual. The maximum was 30.51 inches on the 1st and the minimum was 29.15 inches on the 28th. The normal minimum is 29.34 inches.

C. I. GUNNESS,
Meteorologist

D. F. MURPHY,
Observer.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series   Bulletin No. 492   December, 1929

Meteorological Observations

FOR

DECEMBER

1929

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N.   Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft.   Above sea level, 253.5 ft.

Height of wind instruments 67 ft.   Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	33.0	2 P	24.0	1 A	28.5	64.6	7.5	sw	242	8				
2	28.0	5 P	21.0	5 A	24.5	82.3	0.0	e	104	18	12 M	5-45 P	0.26	2.5
3	38.0	12 M	21.0	3 A	29.5	75.0	3.7	sw	63	11				
4	29.0	12 M	17.0	6 A	23.0	67.3	6.4	s	113	16				
5	32.0	6 P	16.0	7 A	24.0	68.6	1.1	e	133	10				
6	40.0	1 P	26.0	0 A	33.0	69.3	0.5	e	63	8				
7	41.0	2 P	33.0	7 A	37.0	85.3	0.3	w	24	14	10 P	12 P	0.12	
8	33.0	4 P	23.0	12 P	28.0	90.3	0.0	nw	129	11	0 A	8-30 A	0.18	0.5
9	37.0	1 P	21.0	4 A	29.0	62.0	9.1	w	190	26				
10	29.5	1 P	24.0	1 A	26.7	76.6	0.0	nw	39	13				
11	27.0	0 A	9.0	12 P	18.0	67.0	6.6	nw	214	21			T	
12	21.0	8 P	1.0	7-30 A	11.0	63.3	4.5	nw	178	7				
13	32.0	8 P	21.0	0 A	26.5	95.0	0.0	nw	50	5	3-30 A	6 P	0.24	0.5
14	46.0	12-30 P	32.0	0 A	39.0	81.6	0.3	w	116	21				
15	41.0	3 P	28.0	12 P	34.5	82.6	0.0	w	106	21				
16	38.0	2 P	14.0	7 A	26.0	59.6	8.8	w	209	13				
17	33.0	7 P	24.0	7 A	28.5	92.3	0.0	w	33	5	8 A	12 P	0.68	T
18	36.0	11 P	32.0	0 A	34.0	96.0	0.0	se	22	9	0 A	12 P	0.78	
19	37.0	2 P	32.5	5 A	34.7	94.3	0.0	nw	97	8	0 A	12 P	0.62	
20	36.0	0 A	22.0	12 P	29.0	73.3	1.0	sw	179	18	0 A	8 A	0.12	
21	31.0	12 P	18.0	6 A	24.5	56.0	3.9	w	296	26				
22	33.5	12 M	15.0	12 P	24.3	60.3	7.6	nw	269	21				
23	20.0	12 P	7.5	6 A	13.7	73.3	0.0	nw	251	21	1 P	12 P	0.30	
24	28.0	1 P	19.0	12 P	23.5	79.3	8.3	nw	297	26	0 A	8 A	0.40	4.0
25	30.0	3 P	11.0	9 A	20.5	82.7	7.1	s	53	5				
26	34.0	2-30 P	9.0	4 A	21.5	83.7	4.5	se	36	16				
27	42.0	3 P	33.0	0 A	37.5	69.7	3.0	se	221	11				
28	39.0	2 P	32.0	5 A	35.5	85.3	0.0	se	29	6	12-30 P	4 P	0.05	
29	35.0	3 P	33.0	8 A	34.0	93.3	0.0	sw	65	26	11-30 A	8-30 P	0.30	0.5
30	37.0	3 P	31.0	8 A	34.0	64.3	3.8	sw	216	12				
31	44.0	10 A	30.0	12 P	38.5	61.3	3.9	sw	280	33				

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*Based on least time required to blow one mile and corrected to conform to three cup anemometer.

NOTE—Beginning May 1st relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

December, 1929		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.72, 12th	30.65	30.96, 1889
Minimum	29.42, 29th	29.25	28.85, 1915
Mean semi-daily	30.049	30.056	
Range	1.30	1.40	1.78, 1895; 1.01, 1892
Air Temperature			
Highest	46.0, 14th	54.5	65.5, 1908
Lowest	1.0, 12th	–2.3	–22.5, 1917
Mean	28.1	27.3	
Monthly range	45.0	56.8	
Highest mean daily	38.5, 31st		
Lowest mean daily	11.0, 12th		
Mean maximum	34.2		
Mean minimum	21.9		
Greatest daily range	20.0, 12th		
Least daily range	2.0, 29th		
Precipitation			
Precipitation. In inches	4.05	3.47	7.77, 1901; 0.87, 1896
Snow, in inches	8	8.99	26.50, 01, 02; t, 1891
Maximum precipitation in 24 hrs.	0.74, 17th, 18th.		
Number of days on which .01 or more inches of rain fell	12	9	17, 1902; 4, 1892
Wind (miles)			
Total movement	4320	4726	6694, 1925; 3239, 1918
Greatest daily movement	297, 24th		
Least daily movement	22, 18th		
Mean hourly velocity	5.8	6.4	
Maximum velocity for 5 min (corrected to conform to 3 cup anemometer)	33, 31st	29	41, 1928
Wind (direction)			
Prevailing direction	wsw	wnw	
North, days	0		
Northeast, days	0		
East, days	3		
Southeast, days	4		
South, days	2		
Southwest, days	6		
West, days	7		
Northwest, days	9		
Weather			
Mean relative humidity, per cent.	76.0	77.2	87.1 1919’; 67.2, 1890
Mean cloudiness, per cent	71.0	53.4	68, 1897; 39, 1919
Number of clear days	8	8	15, 1890; 2, 1922
Number of fair days	7	10	16, 1909; 4, 1889
Number of cloudy days	16	13	19, 1911, 1922; 7, 1909, 1923
Number of hours bright sunshine	91.9	130.7	172, 1896; 86, 1922
Percent of possible hours of bright sunshine	33	46	
Thunder and lightning	19th		

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1928 for the same month of the year.

ANNUAL SUMMARY

Annual, 1929		Normal	Extremes
Barometer			
(Readings reduced to sea level)			
Maximum	30.74, Jan. 5th	30.81	31.00, 1927
Minimum	28.99, Apr. 17th	28.95	28.47, 1914
Mean semi-daily	29.938	30.016	
Range	1.75	1.86	2.33, 1913; 1.55, 1923
Air Temperature			
Highest	97.0, Sept. 4th	95.8	101, 1919
Lowest	–11.0 Jan.16th	-12.1	–26.0, 1904
Mean	47.6	47.2	49.6, 1913; 44.0, 1904
Annual range	108.0	108.0	
Highest mean daily	81.5, Sept. 4th		
Lowest mean daily	7.3, Jan. 16th		
Mean maximum	58.1	58.1	
Mean minimum	37.2	36.1	
Greatest daily range	48.0, Sept. 24th		
Least daily range	3.0, Sept. 9th		
Precipitation			
Precipitation. In inches	40.96	43.40	57.05, 1897; 30.68, 1908
Snow, in inches	54	48.38	73.00, 1920; 24.50, 1919
Maximum precipitation in 24 hrs.	1.96, Feb. 6th, 7th.		
Number of days on which .01 or more inches of rain fell	129	123	144, 1902; 96, 1924
Wind (miles)			
Total movement	55,888	52,321	63,571, 1908; 36,257, 1894
Greatest daily movement	525, Mar. 17th		
Least daily movement	8, Nov. 12th		
Mean hourly velocity	6.4	6.0	
Maximum velocity for 5 min (corrected to conform to 3 cup anemometer)	38, Jan. 23rd	35	42, 1912
Wind (direction)			
Prevailing direction	wsw	w	
North, days	21		
Northeast, days	6		
East, days	8		
Southeast, days	60		
South, days	55		
Southwest, days	49		
West, days	79		
Northwest, days	87		
Weather			
Mean relative humidity, per cent	69.2	75.8	82.9, 1927; 66.8, 1891
Mean cloudiness, per cent	52.3	50.8	60, '98, '01, '02; 41, '08, '24
Number of clear days	99	109	145, 1891; 59, 1927
Number of fair days	137	128	182, 1912; 83, 1894
Number of cloudy days	129	128	192, 1920; 71, 1910
Number of hours bright sunshine	1910	2,356	2,793, 1910; 1864, 1902
Percent of possible hours of bright sunshine	42.9	53	
Thunder and lightning			
Last Frost	May 23rd	M'y 12	Apr. 23, 1904; June 3, 1908
First Frost	Sept. 19th	S't 19	Aug. 22, 1894; Oct. 13, 1909
Last Snow	Apr. 22nd	Apr 14	Mar. 14, '10; May 5, '91, '17
First Snow	Nov. 21st	Nov 5	Oct. 10, '25; Nov. 26, '91

NOTE—The first column in the above summary gives observations made during the year. The second and third columns give the averages and extremes observed from 1889 to 1928.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 493 January, 1930

Meteorological Observations

FOR

JANUARY

1930

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	34.0	4 P	24.0	5 A	29.0	85.6	1.0	s	40	4	2 P	10 P	0.05	
2	48.0	3 P	32.0	8 A	40.0	79.0	1.8	se	72	8				
3	43.0	1 A	36.0	12 P	39.5	88.0	0.0	w	104	16	1-30 A	11-30 A	0.31	
4	36.0	0 A	13.0	12 P	24.5	57.6	7.1	nw	261	29				
5	27.0	3 P	6.2	8 A	16.6	62.0	9.1	se	139	16				
6	44.5	3 P	24.0	0 A	34.2	63.6	8.2	se	252	18				
7	55.0	4 P	36.0	2 A	45.5	82.0	4.3	se	198	14				
8	56.0	3 P	45.0	4 A	50.5	82.3	0.0	se	220	21				
9	50.0	0 A	31.0	12 P	40.5	90.6	0.0	e	150	39	7 P	10 P	0.04	
10	33.0	1 P	15.0	12 P	24.0	85.6	0.0	nw	148	29				
11	25.0	4 P	11.0	7 A	18.0	67.6	5.6	w	224	12				
12	32.0	4 P	22.0	0 A	27.0	87.3	0.0	w	82	8	4-30 A	12 P	0.69	3.5
13	34.0	12 P	29.0	7 A	31.5	93.0	0.0	w	42	5	0 A	12 P	0.12	
14	39.0	12 M	34.0	7 A	36.5	89.3	0.0	nw	82	8	0 A	12 P	0.23	
15	37.0	4 P	34.0	8 A	35.5	94.0	0.0	se	79	18	0 A	12 P	0.09	
16	34.0	0 A	17.0	12 P	25.5	58.0	0.3	w	235	18				
17	23.0	3 P	9.2	7 A	16.1	55.0	7.7	nw	193	11	6-30 P	12 P	0.02	
18	29.0	7 P	19.0	6 A	24.0	83.0	0.0	nw	148	26	0 A	12 P	0.77	2.5
19	22.0	1 P	5.0	7 A	13.5	65.6	8.8	sw	192	16				
20	26.0	4 P	2.0	7 A	14.0	69.3	4.2	s	69	6				
21	27.0	3 P	21.0	3 A	17.5	82.6	0.0	sw	42	3	8 A	12 P	0.05	0.5
22	27.0	3 P	8.0	12 P	17.5	83.3	0.2	w	49	4	0 A	12 P	0.09	2.0
23	27.0	3 P	3.0	3 A	15.0	63.0	7.6	w	58	9				
24	25.0	3 P	-1.0	5 A	12.0	66.6	9.6	se	98	9				
25	29.0	3 P	11.0	7 A	20.0	59.0	8.6	s	183	24				
26	22.0	3 P	3.0	12 P	12.5	56.7	9.7	w	230	18				
27	23.0	7 P	-4.0	6 A	9.5	76.3	4.6	sw	39	3	3 P	12 P	0.07	0.5
28	39.0	2 P	21.0	0 A	30.0	81.0	3.7	se	75	29	0 A	8 A	0.04	0.5
29	32.0	0 A	16.0	12 P	24.0	58.0	8.3	w	251	24				
30	22.0	3 P	8.0	7 A	15.0	66.0	0.1	w	142	17				
31	25.0	4 P	3.5	7 A	14.5	68.0	6.3	s	115	10				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

January 1930		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.77, 5th	30.71	31.00, 1927
Minimum	29.74, 18th	29.18	28.55, 1913
Mean semi-daily	30.225	30.07	
Range	1.03	1.54	2.18, 1913; 0.97, 1896
Air Temperature			
Highest	56.0, 8th	50.4	61.5, 1890
Lowest	–4.0, 27th	–7.4	–23.0, 1907
Mean	26.0	24.1	
Monthly range	60.0	58.2	
Highest mean daily	50.5, 8th		
Lowest mean daily	9.5, 27th		
Mean maximum	33.1		
Mean minimum	17.3		
Greatest daily range	27.0, 27th		
Least daily range	3.0, 15th		
Precipitation			
Precipitation. In inches	2.57	3.42	7.15, 1898; 1.07, 1896
Snow, in inches	9.5	13	33, 1898, 1923; 1.75, 1911
Maximum precipitation in 24 hrs.	.77, 18th.		
Number of days on which .01 or more inches of rain fell	13	11	18, 1923; 4, 1889
Wind (miles)			
Total movement	4,222	5,068	7,770, 1908; 2,896, 1895
Greatest daily movement	261, 4th		
Least daily movement	39, 27th		
Mean hourly velocity	5.7	6.8	
Maximum velocity for 5 min (corrected to conform to 3 cup anemometer)	39, 9th	30	40, 1913
Wind (direction)			
Prevailing direction	sw	wnw	
North, days	0		
Northeast, days	0		
East, days	1		
Southeast, days	8		
South, days	4		
Southwest, days	3		
West, days	10		
Northwest, days	5		
Weather			
Mean relative humidity, per cent	74.1	78.2	85.3, 1927; 68.2, 1890
Mean cloudiness, per cent	69.3	54	66, 1898; 38, 1922
Number of clear days	10	8	16, 1922; 2, 1914
Number of fair days	6	10	18, 1890, 1926; 3, 1916
Number of cloudy days	15	13	22, 1923; 4, 1920
Number of hours bright sunshine	116.8	140	214, 1920; 76, 1923
Percent of possible hours of bright sunshine	39.7	47.6	
Thunder and lightning			

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1929.

REMARKS

The weather during the month of January has been less severe than usual for Amherst. The mean or average temperature was 26 degrees, while the normal temperature for this month is 24.1 degrees. The weather has been fairly cold during the latter part of the month, but warm weather at the beginning of the month helped to raise the average. The highest temperature was 56 degrees on the 8th, and the lowest was -4 degrees on the 27th. The normal maximum is 50 4 degrees and the normal minimum for January is 7.4 degrees below zero. It is interesting to note that the lowest temperature recorded in the last 41 years is 23.5 degrees below zero in 1907. The total precipitation during the month was 2.57 inches, while the normal precipitation for January is 3.52 inches. The snowfall was 9.5 inches and normal snowfall is 13 inches. The maximum snowfall during any month of January during the past 41 years was 33 inches in 1898 and 1923. There was about 2 inches of snow on the ground on January 1. This had disappeared by January 7. The ground has again been covered with a small amount of snow since January 12 to the end of the month. There were 116.8 hours of bright sunshine recorded against a normal of 140 hours. The greatest number of hours of bright sunshine in January was in 1920 when 214 hours were recorded; the least was in 1923 when 76 hours were recorded. The mean cloudiness was 69.3 per cent. with a normal of 54 per cent. The mean relative humidity was 74.1 per cent. The total wind movement was 4222 miles, the normal beiug 5068 miles. The prevailing direction was Southwest. The normal direction for this month is West Northwest. The highest wind was on the 9th with a velocity of 39 miles per hour. The highest barometer was 30.77 inches on the 5th, which is .06 higher than normal for January. The lowest was 29.74 on the 18th, the normal minimum being 29.18 inches.

C. I. GUNNESS,
Meteorologist

D. F. MURPHY,
Observer.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series | Bulletin No. 494 | February, 1930

Meteorological Observations

FOR

FEBRUARY

1930

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	30.0	4 P	17.0	5 A	23.5	66.0	10.0	sw	109	10				
2	41.0	3 P	25.0	0 A	33.0	73.6	2.6	se	140	12				
3	38.0	12 M	24.0	12 P	31.0	73.6	2.4	nw	108	14	4 P	7 P	.02	
4	28.0	6 P	14.0	7 A	21.0	81.6	0.0	w	67	8	9-30 A	12 P	.36	2.5
5	30.0	1 P	12.0	12 P	21.0	63.0	5.8	nw	117	15	0 A	4 A	.08	1.5
6	14.0	3 P	−6.0	7 A	4.0	61.0	8.2	nw	105	14				
7	20.0	4 P	6.0	0 A	13.0	77.6	0.0	w	42	8	8 A	11 A	.05	0.5
8	31.0	2 P	13.0	7 A	22.0	69.0	8.2	sw	129	18				
9	36.0	3 P	13.0	2 A	24.5	60.6	8.8	se	138	20				
10	38.0	11 A	24.0	12 P	31.0	52.6	5.7	sw	193	18				
11	26.0	4 P	12.0	12 P	19.0	47.7	10.4	w	257	18				
12	35.0	4 P	0.0	7 A	17.5	64.7	7.2	se	101	12				
13	43.0	3 P	32.0	0 A	37.5	91.0	0.0	se	160	12	4 A	12 P	.38	
14	33.0	2 P	24.0	12 P	28.5	56.0	10.5	w	164	15	0 A	3 A	.10	
15	30.0	1 P	19.0	7 A	24.5	67.7	2.8	se	101	20	4-30 P	12 P	.19	
16	22.0	0 A	1.0	12 P	11.5	58.3	10.6	nw	294	29				
17	20.0	3 P	−5.0	3 A	7.5	54.0	10.6	sw	129	10				
18	40.0	3 P	13.0	1 A	26.5	68.3	6.0	se	171	10				
19	54.0	5 P	35.0	0 A	44.5	64.7	9.0	se	153	10				
20	65.0	4 P	37.6	8 A	51.3	64.0	10.8	s	112	10				
21	58.0	1 P	35.0	12 P	46.5	71.7	9.3	nw	77	14				
22	53.0	5 P	28.0	7 A	40.5	85.0	8.4	se	64	10				
23	53.0	6 P	37.0	8 A	45.0	84.0	0.1	se	144	20	9 P	12 P	.15	
24	63.0	4 P	38.0	12 P	50.5	68.0	8.5	s	96	10				
25	59.0	6 P	34.0	3 A	46.5	90.3	1.5	w	58	24				
26	41.0	0 A	24.0	11 A	32.5	68.6	0.0	w	257	20	6 P	11 P	.06	1.0
27	39.0	4 P	24.0	7 A	31.5	41.0	11.1	w	179	24				
28	43.0	3 P	21.0	7 A	32.0	49.3	11.1	se	135	8				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

February 1930		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.60, 17th	30.63	31.05, 1920
Minimum	29.62, 5th	29.20	28.56, 1895
Mean semi-daily	30.065	30.03	
Range	.98	1.43	1.89, 1900 ; 1908; .88, 1913
Air Temperature			
Highest	65.0, 20th	50.3	57.5, 1890
Lowest	-6.0, 6th	-7.9	-22.5, 1918
Mean	29.2	23.5	
Monthly range	71.0	58.2	
Highest mean daily	51.3, 20th		
Lowest mean daily	4.0, 6th		
Mean maximum	38.7		
Mean minimum	19.7		
Greatest daily range	35.0, 12th		
Least daily range	9.0, 14th		
Precipitation			
Precipitation. In inches	1.39	3.35	8.12, 1900; 0.62, 1901
Snow, in inches	5.5	14.27	48.75, 1893; 2.5, 1912
Maximum precipitation in 24 hrs.	.48, 13th, 14th.		
Number of days on which .01 or more inches of rain fell	9	10	15, 1893, 1920; 4, 1901
Wind (miles)			
Total movement	3,800	4,833	6,445, 1896; 3,438, 1892
Greatest daily movement	294, 16th		
Least daily movement	42, 7th		
Mean hourly velocity	5.7	7.1	
Maximum velocity for 5 min (corrected to conform to 3 cup anemometer)	29, 16th	29	42, 1912
Wind (direction)			
Prevailing direction	sw	wnw	
North, days	0		
Northeast, days	0		
East, days	0		
Southeast, days	10		
South, days	2		
Southwest, days	4		
West, days	7		
Northwest, days	5		
Weather			
Mean relative humidity, per cent	66.9	77.9	90, 1889; 66.8, 1902
Mean cloudiness, per cent	57.0	50.5	66, 1890, 1927; 31, 1905
Number of clear days	15	10	17, 1924; 2, 1927
Number of fair days	4	8	16, 1920 ; 3, 1890
Number of cloudy days	9	10	16, 1894 ; 2, 1920
Number of hours bright sunshine	179.6	160	221, 1924 ; 110, 1927
Percent of possible hours of bright sunshine	61.0	54.4	
Thunder and lightning			

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1929.

REMARKS

The outstanding feature of the weather during February was the unusual high temperature for a week beginning on the 18th. The highest temperature was recorded on the 20th with a reading of 65 degrees. The normal maximum for February is 50.3 degrees and the highest observed heretofore was 57.5 degrees in 1890. The lowest temperature observed was on the 6th when the thermometer fell to –6 degrees. The normal minimum for February is –7.9 degrees and in 1918 the mercury fell to –22.5 degrees which is the minimum for this station. The mean temperature for the month was 29.2 degrees which is 5.7 degrees higher than normal. This has been exceeded three times in the history of the station; in 1890 when the mean was 32.6, in 1909 with 29.3 and in1925 with 32.1 degrees.

Only 5.5 inches of snow fell during the month with a total precipitation of 1.39 inches. The normal snowfall is 14.3 inches for February and the normal precipitation is 3.35 inches. Beginning on February and the normal precipitation is 3.35 inches. Beginning on February 1st with approximately 1.5 inches of snow on the ground, this was increased to 4 inches on the 5th. By the 10th this had decreased to 3 inches and by the 22nd the ground was bare and continued so to the end of the month except for a fall of 1 inch on the 26th which lasted only one day. The amount of sunshine was greater than normal being 179.6 hours, the normal being 160 hours. The number of clear days was 15, while the normal is 10 days. The relative humidity was 66.9 per cent. The total wind movement was 3800 miles while the normal is 4833 miles. There were no unusually high winds and the prevailing wind direction was south west. The normal wind direction for this month is west north west.

C. I. GUNNESS,
Meteorologist

D. F. MURPHY,
Observer

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 495 March, 1930

Meteorological Observations

FOR

MARCH

1930

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	43.0	2 P	22.0	7 A	32.5	57.7	8.2	s	175	20				
2	38.0	3 P	24.0	12 P	31.0	77.0	3.0	nw	245	29	2 A	10-30 P	.15	
3	24.0	5 P	14.0	7 A	19.0	63.0	8.3	nw	392	29				
4	30.0	4 P	19.0	7 A	24.5	56.7	10.8	nw	221	20				
5	40.0	5 P	16.0	5 A	28.0	63.0	8.0	s	201	24				
6	54.0	3 P	26.0	7 A	40.0	67.7	11.5	w	84	7				
7	47.0	2 P	27.0	6 A	37.0	77.0	3.1	w	103	18				
8	44.0	11 A	38.0	7 A	41.0	92.3	0.8	n	196	29	12-30 A	12 P	.99	
9	45.0	12 M	34.0	6 A	39.5	61.3	3.9	w	303	29	0 A	8 A	.04	
10	55.0	4 P	28.0	6 A	41.5	54.7	10.1	sw	135	12				
11	55.0	2 P	29.0	7 A	42.0	73.3	5.0	e	147	24	2-30 P	12 P	.33	
12	46.0	3 P	33.0	5 A	39.0	73.3	3.3	se	177	12	0 A	4 A	.03	
13	56.0	4 P	32.0	5 A	44.0	56.6	10.3	s	196	30				
14	37.0	3 P	26.0	7 A	31.5	46.0	11.8	w	475	29				
15	42.0	4 P	22.0	7 A	32.0	44.3	11.9	w	290	24				
16	45.0	2 P	26.0	3 A	35.5	52.3	5.2	w	127	18				
17	44.0	4 P	33.0	9 A	38.5	76.3	4.0	e	72	11	0 A	12 P	.12	
18	36.0	3 P	32.0	7 A	34.0	90.0	0.0	se	82	20	0 A	12 P	.43	
19	37.0	3 P	29.0	12 P	33.0	56.3	7.8	w	300	29	0 A	8 A	.03	
20	48.0	5 P	26.0	6 A	37.0	51.3	12.1	sw	289	29				
21	41.0	4 A	22.0	12 P	31.5	49.0	12.1	w	383	29				
22	32.0	3 P	18.0	7 A	25.0	50.0	12.2	w	459	29				
23	41.0	4 P	21.0	7 A	31.0	40.0	12.2	w	337	24				
24	52.0	3 P	22.0	6 A	37.0	41.7	11.3	se	134	18				
25	40.0	8 P	36.0	9 A	38.0	95.0	0.0	w	136	14	2 A	12 P	1.04	
26	52.0	12 M	33.0	12 P	42.5	64.0	5.7	s	256	24	0 A	8 A	.79	
27	38.0	12 M	31.0	5 A	34.5	57.7	7.5	s	278	24				T
28	42.0	3 P	30.0	6 A	36.0	54.3	6.5	sw	249	24				
29	43.0	3 P	26.0	5 A	34.0	57.0	10.6	nw	126	20				
30	50.0	3 P	25.0	7 A	37.5	59.0	6.3	se	85	20				
31	45.0	4 P	30.0	12 P	37.5	51.7	12.6	nw	175	20				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

March, 1930	Normal	Extremes
Barometer		
(Readings reduced to sea level)		
Maximum 30.43, 15th	30.60	30.96, 1904
Minimum 29.00, 8th	29.26	28.47, 1914
Mean semi-daily 29.762	30.02	
Range 1.43	1.35	2.10, 1914 ; 0.85, 1915
Air Temperature		
Highest 56.0, 13th	63.9	79.5, 1907, 1921
Lowest 14.0, 3rd	5.7	-7.5, 1906
Mean 35.0	34.2	
Monthly range 42.0	58.2	
Highest mean daily 44.0, 13th		
Lowest mean daily 19.0, 3rd		
Mean maximum 43.3		
Mean minimum 26.8		
Greatest daily range 30.0, 24th		
Least daily range 4.0, 18th, 25th		
Precipitation		
Precipitation. In inches 3.95	3.68	7.13, 1899; 0.12, 1915
Snow, in inches Trace	8.11	27, 1899; 0, 1921
Maximum precipitation in 24 hrs. 1.09, 25th, 26th.		
Number of days on which .01 or more inches of rain fell 10	11	17, 1890, 1913; 3, 1915
Wind (miles)		
Total movement 6,828	5,738	7,485, 1911; 3,006, 1905
Greatest daily movement 475, 14th		
Least daily movement 72, 17th		
Mean hourly velocity 9.0	7.7	
Maximum velocity for 5 min 30, 13th	29	39, 1913
(corrected to conform to 3 cup anemometer)		
Wind (direction)		
Prevailing direction wsw	wnw	
North, days 1		
Northeast, days 0		
East, days 2		
Southeast, days 4		
South, days 5		
Southwest, days 3		
West, days 11		
Northwest, days 5		
Weather		
Mean relative humidity, per cent 61.6	75.0	86.8, 1916; 63.7, 1891
Mean cloudiness, per cent 48	51.0	68, 1901; 27, 1915
Number of clear days 16	11	22, 1924; 3, 1901
Number of fair days 9	9	17, 1900; 4, 1895
Number of cloudy days 6	11	21, 1901 ; 1, 1915
Number of hours bright sunshine 236.1	201	292, 1924; 93, 1901
Percent of possible hours of bright sunshine 63.6	54.4	
Thunder and lightning 25th		

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1929.

REMARKS

The weather during the month of March has been unusually clear, and there has been a large amount of wind and an absence of snow. While the lack of snow may have given the impression that we were experiencing an early spring, we find the season in a normal stage of advance at the end of the month. The mean temperature during the month was practically normal, being 35 degrees and the normal being 34.2 degrees. The highest temperature was only 56 degrees on the 13th, while the normal maximum is 63.9 degrees. The lowest temperature was 14 degrees on the 3rd, and the normal minimum is 5.7 degrees. It is interesting to note that in April 1906 the thermometer recorded -7.5 degrees. We are informed by the Department of Pomology that there has been no injury to peach buds, except possibly on low orchards. The total rainfall for the month was 3.95 inches. The normal rainfall for March is 3.68 inches. No snow fell and the ground was bare throughout the month. The normal snowfall for March is 8.11 inches. In March 1899 there was a total snowfall of 27 inches. In only one year previously has there been no snow during March. This was in 1921. Rain fell on 10 days, while the normal number of days of rain during March is 11. The amount of sunshine during the month was unusually high, being 236.1 hours. The normal is 201 hours. There were 16 clear days, 9 fair days and 6 cloudy days. The total wind movement was 6828 miles, the normal being 5738 miles. The highest velocity was observed on the 13th with a maximum of 30 miles per hour. The mean relative humidity for the month was 61.6 per cent.

C. I. GUNNESS,
Meteorologist

D. F. MURPHY,
Observer

MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 496 April, 1930

Meteorological Observations

FOR

APRIL

1930

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow *
1	58.0	2 P	27.0	5 A	42.5	61.3	9.7	se	212	20				
2	47.0	2 A	32.0	12 P	39.5	58.3	12.2	w	418	29	2 A	5 A	.05	
3	52.0	5 P	28.0	6 A	40.0	51.0	12.8	se	116	14				
4	54.0	3 P	30.0	7 A	42.0	56.0	12.4	nw	299	29				
5	64.0	4 P	27.0	6 A	45.5	55.3	12.9	se	80	8				
6	62.0	2 P	33.0	7 A	47.5	65.0	8.3	e	167	22	9-30 P	12 P	.16	
7	58.0	3 P	39.0	12 P	48.5	79.7	3.8	s	297	20	0 A	12 P	.71	
8	40.0	3 P	32.0	12 P	36.0	64.0	4.6	s	259	24				
9	43.0	5 P	28.0	7 A	35.5	60.3	8.9	w	331	23				
10	59.0	3 P	25.0	6 A	42.0	48.7	12.1	e	67	11				
11	68.0	2 P	44.0	6 A	56.0	58.3	9.4	e	115	15				
12	65.0	4 P	39.0	3 A	52.0	73.7	8.3	w	83	8	0 A	8 A	.11	
13	52.0	6 P	37.0	6 A	44.5	85.3	0.0	s	69	6				
14	73.0	1 P	44.0	12 P	58.5	58.0	13.3	w	205	28				
15	54.0	5 P	31.0	7 A	42.5	38.3	13.3	n	169	12				
16	54.0	3 P	32.0	6 A	43.0	43.3	10.1	n	160	20				
17	46.0	1 P	29.0	5 A	37.5	61.0	4.3	se	119	10	5 P	12 P	.05	
18	48.0	12 P	35.0	0 A	41.5	95.0	0.0	se	68	9	0 A	12 P	.15	
19	57.0	3 P	44.0	12 P	50.5	79.3	3.4	w	159	24	0 A	8 A	.04	
20	57.0	3 P	35.0	6 A	46.0	43.3	13.6	w	234	29				
21	51.0	11 A	29.0	5 A	40.0	56.7	4.7	se	109	15				
22	50.0	2 P	31.0	12 P	40.5	69.7	7.1	sw	214	29	1-30 A	8 A	.14	
23	28.0	2 P	26.0	5 A	27.0	60.0	13.7	sw	355	30				T
24	39.0	2 P	25.0	3 A	32.0	55.0	7.1	sw	301	25				T
25	52.0	2 P	28.0	5 A	40.0	59.7	8.8	w	163	24				
26	58.0	12 M	40.0	12 P	49.0	52.7	9.2	nw	148	20				
27	66.0	4 P	34.0	4 A	50.0	45.3	13.9	sw	174	20				
28	63.0	3 P	40.0	12 P	51.5	40.7	13.9	n	174	13				
29	67.0	3 P	29.0	6 A	48.0	47.7	14.0	se	118	18				
30	75.0	2 P	36.0	5 A	55.5	44.0	7.6	se	148	15				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

April, 1930	Normal	Extremes
Barometer (Readings reduced to sea level)		
Maximum 30.59, 17th	30.48	30.71, 1911
Minimum 29.07, 7th	29.41	29.14, 1891
Mean semi-daily 30.039	29.99	
Range 1.52	1.08	1.42,1891,1907; 0.72, 1919
Air Temperature		
Highest 75.0, 30th	79.5	88.5, 1896
Lowest 25.0, 10th, 24th	21.6	8.5, 1923
Mean 44.1	45.8	
Monthly range 50.0	57.8	
Highest mean daily 58.5, 14th		
Lowest mean daily 27.0, 23rd		
Mean maximum 55.3		
Mean minimum 33.0		
Greatest daily range 39.0, 30th		
Least daily range 2.0, 23rd		
Precipitation		
Precipitation. In inches 1.41	3.27	6.89, 1929; 0.76, 1892
Snow, in inches Trace	2.32	11, 1891; 0, 1910
Maximum precipitation in 24 hrs. .71, 7th.		
Number of days on which .01 or more inches of rain fell 8	11	18, 1909; 3, 1892
Wind (miles)		
Total movement 5,531	5,436	8,208, 1908; 3,853, 1917
Greatest daily movement 418, 2nd		
Least daily movement 67, 10th		
Mean hourly velocity 7.7	7.5	
Maximum velocity for 5 min 30, 23rd (corrected to conform to 3 cup anemometer)	29	39, 1916
Wind (direction)		
Prevailing direction ssw	wnw	
North, days 3		
Northeast, days 0		
East, days 3		
Southeast, days 8		
South, days 3		
Southwest, days 4		
West, days 7		
Northwest, days 2		
Weather		
Mean relative humidity, per cent 59	69.6	81.2, 1916; 54.5, 1892
Mean cloudiness, per cent 48	49.2	75, 1901; 34, 1925, 1927
Number of clear days 15	11	19, 1911; 3, 1898, 1902
Number of fair days 11	10	18, 1915; 2, 1894, 1901
Number of cloudy days 4	9	22, 1901; 3, 1899, 1924
Number of hours bright sunshine 273.4	221	296, 1911; 103, 1901
Percent of possible hours of bright sunshine 68.0	55.0	
Thunder and lightning		

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1929.

REMARKS

The weather during the month of April was cooler than normal and had less rain than normal. The mean temperature for the month was 44.1 degrees which is 1.7 degrees less than normal. The highest temperature was 75 degrees on the 30th. Last year the highest temperature in April was 86.5 degrees and this occurred on the 8th. The lowest temperature was 25 degrees on the 10th and 24th. The normal minimum temperature for April is 21.6 degrees. Only 1.41 inches of rain fell during the month, while the normal rainfall for April is 3.27 inches. Last year the rainfall during April was 6.89 inches. In 1892 only .76 inches fell in April. Light snow squalls occurred on the 23rd and 24th. There was a total of 273.4 hours of bright sunshine, while the normal for April is 221 hours. The mean cloudiness was 48 percent which is slightly less than normal. The number of clear days were 15, the normal being 11. Only 4 days were recorded as cloudy. No high winds were recorded, and the wind movement was normal. The prevailing direction was south southwest.

The progress of the season is expressed as follows by Dr. J. K. Shaw: "The weather in April has been variable warm periods with rather rapid development alternating with cool periods and very slow development. On the whole, fruit buds are somewhat ahead of normal as the month closes. All peach varieties are full of fruit buds, and other fruits promise good to excellent bloom. Strawberries have wintered well, and there is about the normal winter injury to raspberry plants".

C. I. GUNNESS,
Meteorologist

D. F. MURPHY,
Observer

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 497 May, 1930

Meteorological Observations

FOR

MAY

1930

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	81	2 P	43	5 A	62.0	70.7	11.0	s	111	12	6 P	8 P	.05	
2	88	2 P	55	12 P	71.5	50.7	11.0	s	228	28	3-30 P	10-30 P	.44	
3	61	2 P	51	12 P	56.0	41.0	14.0	sw	348	31				
4	74	5 P	44	4 A	59.0	39.0	14.1	w	343	32				
5	87	4 P	52	1 A	69.5	33.3	14.1	w	140	20				
6	89	4 P	57	6 A	73.0	47.0	14.3	sw	176	20				
7	92	4 P	59	5 A	75.5	55.7	14.3	sw	144	20				
8	86	4 P	61	3 A	73.5	66.3	7.7	se	94	18	4 A	5 A	.04	
9	77	4 P	53	6 A	65.0	42.7	14.4	nw	143	22				
10	75	3 P	40	7 A	57.5	41.7	14.4	n	124	13				
11	74	6 P	37	6 A	55.5	45.0	14.4	nw	85	13				
12	78	3 P	42	5 A	60.0	53.3	14.5	se	147	12				
13	82	3 P	47	4 A	64.5	51.3	8.6	w	180	20				
14	70	11 A	46	12 P	58.0	67.0	5.8	e	131	14	6-30 P	7 P	.02	
15	51	4 P	45	5 A	48.0	88.3	0.0	n	165	9	0 A	8 P	.74	
16	68	2 P	45	2 A	56.5	70.0	6.2	sw	111	16	3-30 P	4 P	.04	
17	75	4 P	47	5 A	61.0	56.7	12.4	sw	174	28				
18	55	5 P	47	6 A	51.0	63.3	1.6	sw	110	6				
19	55	3 P	47	5 A	51.0	82.0	0.0	e	88	9	2 A	12 P	.31	
20	60	1 P	45	5 A	52.5	72.7	2.6	sw	130	20	0 A	5 A	.04	
21	70	2 P	43	5 A	56.5	64.7	13.3	w	151	20	8-30 P	9 P	.04	
22	78	3 P	42	5 A	65.0	75.7	13.9	se	57	9				
23	90	3 P	57	5 A	73.5	62.3	14.9	e	131	18				
24	76	3 P	53	6 A	64.5	56.3	8.9	se	138	11				
25	57	0 A	46	12 P	51.5	94.7	0.0	se	96	11	1 A	12 P	.99	
26	53	3 P	43	5 A	48.0	70.3	2.7	nw	171	25	0 A	11-30 A	.14	
27	54	3 P	42	1 A	48.0	58.3	2.3	nw	227	25	8-30 A	10-30 A	.04	
28	64	1 P	43	5 A	53.5	77.0	5.4	s	77	6	3 P	12 P	.43	
29	63	3 P	47	12 P	55.0	74.0	6.2	w	85	11	1 A	6 A	.02	
30	60	5 P	39	6 A	49.5	60.0	10.3	w	118	18				
31	61	2 P	35	5 A	48.0	54.7	12.5	w	170	18				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

May, 1930	Normal	Extremes
Barometer (Readings reduced to sea level)		
Maximum 30.34, 11th, 12th	30.38	30.55, 1895
Minimum 29.57, 2nd	29.51	29.16, 1893
Mean semi-daily 29.944	29.95	
Range 0.77	.88	1.16, 1893; 0.60, 1899
Air Temperature		
Highest 92, 7th	85.5	94.5, 1911
Lowest 35, 31st	30.8	24.0, 1900
Mean 59.1	56.8	
Monthly range 57	54.6	
Highest mean daily 75.5, 7th		
Lowest mean daily 48.0, 15, 26, 27th, 31st		
Mean maximum 71.1		
Mean minimum 46.9		
Greatest daily range 38.0, 1st		
Least daily range 6.0, 15th		
Precipitation		
Precipitation. In inches 3.34	3.63	6.91, 1901; 0.48, 1903
Snow, in inches		
Maximum precipitation in 24 hrs. 1.0, 25th, 26th.		
Number of days on which .01 or more inches of rain fell 14	12	20, 1901; 5, 1903
Wind (miles)		
Total movement 4,593	4,540	5,946, 1907; 2,180, 1894
Greatest daily movement 348, 3rd		
Least daily movement 57, 22nd		
Mean hourly velocity 6.2	6.1	
Maximum velocity for 5 min 32, 4th (corrected to conform to 3 cup anemometer)	25	35, 1912
Wind (direction)		
Prevailing direction sw	w	
North, days 2		
Northeast, days 0		
East, days 3		
Southeast, days 5		
South, days 3		
Southwest, days 7		
West, days 7		
Northwest, days 4		
Weather		
Mean relative humidity, per cent 60.8	70.7	83.9, 1927; 59.3, 1891
Mean cloudiness, per cent 60	51.5	70, 1901; 30, 1923
Number of clear days 17	10	20, 1923; 0, 1927
Number of fair days 7	11	17, 1907, 1926; 5, 1923
Number of cloudy days 7	10	20, 1927; 3, 1903, 1922
Number of hours bright sunshine 285.8	250.1	334, 1922; 137, 1927
Percent of possible hours of bright sunshine 63.0	55.2	
Thunder and lightning		
Frosts 31st		
Last frost	12th	J'e 3, 1908; Apr. 23, 1904

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1929.

REMARKS

The weather during the first part of May was warm and dry but cooler weather in the latter part of the month and rain during the last week has brought the month near to normal. The mean temperature for the month was 59.1 degrees which is 2.3 degrees higher than normal. The maximum temperature was 92 degrees on the 7th and the lowest was 35 degrees on the 31st. The normal maximum for May is 85.5 degrees and the normal minimum is 30.8 degrees. There was a light frost on low land on the 31st. The normal time for the last frost is on May 12th. The latest frost which has been recorded at this station was June 3rd in 1908. The rainfall for the month was 3.34 inches as compared with a normal of 3.63 inches. Rain fell on 14 days, the normal number of days of rain in May being 12. The wind movement during the month was practically normal and the highest velocity was 32 miles per hour on the 4th. The prevailing wind direction was south west. The number of clear days was 17, fair days 7, and cloudy days 7. The number of hours of bright sunshine was 285.8 as compared with a normal of 250 hours.

The following observations have been made by Dr. J. K. Shaw on vegetation:

"The early part of May was warm, sunny, and dry; all fruit trees bloomed heavily and favorable conditions resulted in a heavy set of fruit. Dates of blooming were about a week earlier than the average. Sufficient rain has fallen to relieve the drought of the early part of the month. May closes with vegetation generally in a satisfactory condition."

C. I. GUNNESS,
Meteorologist

D. F. MURPHY,
Observer

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 498 June, 1930

Meteorological Observations

FOR

JUNE

1930

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	75	3 P	37	3 A	56.0	46.6	8.2	sw	251	32				
2	79	4 P	41	5 A	60.0	59.6	15.1	se	91	8				
3	88	6 P	46	6 A	67.0	55.0	15.1	sw	102	14				
4	90	5 P	53	5 A	71.5	49.6	15.1	sw	116	18				
5	92	4 P	58	5 A	75.0	57.6	15.2	s	74	11				
6	88	2 P	62	4 A	75.0	72.3	9.2	e	171	15	5-30 P	10-30 P	.24	
7	79	1 P	64	5 A	71.5	83.3	3.2	e	154	10	1 P	5 P	.12	
8	76	3 P	61	5 A	68.5	76.0	8.3	se	66	17				
9	71	11 A	61	6 A	66.0	91.3	0.3	w	151	13	12-30 A	6-30 P	1.64	
10	80	2 P	65	1 A	72.5	73.3	7.2	se	274	22	11 P	12 P	.18	
11	77	4 P	62	4 A	69.5	79.3	10.3	se	147	8	0 A	2-30 A	.31	
12	79	3 P	61	4 A	70.0	81.3	10.0	se	89	13	4-30 P	5 P	.01	
13	84	4 P	63	4 A	73.5	73.6	12.2	se	118	10				
14	85	3 P	64	5 A	74.5	74.3	11.5	se	125	10				
15	90	2 P	63	4 A	76.5	70.6	15.3	se	138	11				
16	87	2 P	63	4 A	75.0	69.0	15.3	se	183	13				
17	83	1 P	64	3 A	73.5	77.6	6.4	se	170	13	3-30 P	12 P	.30	
18	81	1 P	67	1 A	74.0	87.3	6.8	se	197	14	0 A	4 P	.61	
19	85	1 P	62	12 P	73.5	81.6	3.6	se	102	13	1 P	2 P	.28	
20	76	1 P	62	5 A	69.0	69.0	6.5	se	136	13	5-30 A	6 A	.02	
21	84	1 P	58	2 A	71.0	62.6	11.1	se	154	13	3-30 P	4 P	.02	
22	85	5 P	61	5 A	73.0	63.0	12.0	nw	141	11				
23	86	6 P	53	5 A	69.5	53.6	15.3	nw	143	22				
24	83	5 P	50	5 A	66.5	76.3	5.8	se	64	09				
25	91	2 P	61	5 A	76.0	65.6	15.3	nw	119	13				
26	89	4 P	59	5 A	74.0	58.6	14.0	se	77	11	9-00 P	12 P	.53	
27	83	1 P	67	4 A	75.0	77.3	5.6	se	144	17	0 A	6 P	.21	
28	72	4 P	56	6 A	64.0	53.7	15.3	w	220	22				
29	80	4 P	48	5 A	64.0	61.3	15.3	se	85	10				
30	84	4 P	62	1 A	73.0	74.0	9.5	se	178	15				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

June, 1930		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.33, 3rd, 12th	30.31	30.54, 1889
Minimum	29.43, 27th	29.56	29.24, 1902
Mean semi-daily	29.928	29.961	
Range	.90	0.75	1.27, 1902; 0.52, 1916
Air Temperature			
Highest	92, 5th	91.1	101, 1919
Lowest	37, 1st	40.0	34, 1891
Mean	70.6	63.7	
Monthly range	55	51.2	
Highest mean daily	76.5, 15th		
Lowest mean daily	56.0, 1st		
Mean maximum	82.7		
Mean minimum	58.5		
Greatest daily range	42, 3rd		
Least daily range	10, 9th		
Precipitation			
Precipitation. In inches	4.47	3.54	9.68, 1922; 0.76, 1908
Snow, in inches			
Maximum precipitation in 24 hrs.	1.64, 9th		
Number of days on which .01 or more inches of rain fell	13	10	17, 1922; 4, 1908
Wind (miles)			
Total movement	4,180	3,584	4,571, 1908; 1,409, 1906
Greatest daily movement	274, 10th		
Least daily movement	64, 24th		
Mean hourly velocity	5.8	5	
Maximum velocity for 5 min (corrected to conform to 3 cup anemometer)	32, 1st	23	35, 1922
Wind (direction)			
Prevailing direction	se	wsw	
North, days	0		
Northeast, days	0		
East, days	2		
Southeast, days	19		
South, days	1		
Southwest, days	3		
West, days	2		
Northwest, days	3		
Weather			
Mean relative humidity, per cent	69.1	73.9	85.9, 1922; 65.3, 1891
Mean cloudiness, per cent	54	50.1	71, 1903; 28, 1908
Number of clear days	15	9	22, 1908; 1, 1907, 1926
Number of fair days	12	13	23, 1912; 4, 1895, 1903
Number of cloudy days	3	8	22, 1903; 1, 1923
Number of hours bright sunshine	314	257.4	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	69	56	
Thunder and lightning	6th, 26th		
Frosts			
Last frost			

NOTE — The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1929.

REMARKS

The weather during the month of June was marked with high temperature, a large amount of sunshine and heavy rain fall. The highest temperature was 92 degrees on the 5th, the normal highest temperature in June being 91.1 degrees. In 1919 a maximum of 101 degrees was registered. The mean temperature for the month was 70.6 degrees which is 5.2 degrees higher than normal. The lowest temperature was 37 degrees on the 1st. The total rain fall during the month was 4.47 inches. Rain fell on 13 days. Inspite of all this rain 15 days were recorded as clear, there being a total of 314 hours of bright sunshine. The normal number of hours of bright sunshine is 257.4, the normal number of clear days being 9. The total wind movement was 4180 miles compared with a normal of 3584. The prevailing wind direction was southeast, the wind blowing from this direction on 19 days.

C. I. GUNNESS,
Meteorologist

F. R. SHAW,
Observer

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series   Bulletin No. 499   July, 1930

Meteorological Observations

FOR

JULY

1930

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N.   Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	82	1 P	63	5 A	72.5	80.6	5.0	se	182	17	2 P	12 P	.79	
2	83	4 P	65	1 A	74.0	70.3	8.9	nw	88	13				
3	73	4 P	60	6 A	66.5	78.3	3.0	nw	128	11	8 P	10 P	.26	
4	76	3 P	55	2 P	65.5	66.3	7.9	nw	108	10				
5	78	4 P	49	6 A	63.5	60.7	15.2	se	72	7				
6	79	3 P	61	4 A	70.0	89.3	2.8	se	149	20	6 A	8 P	.28	
7	82	2 P	59	6 A	70.5	70.0	7.6	nw	103	22				
8	80	4 P	59	5 A	69.5	59.7	15.2	w	192	20				
9	80	2 P	60	5 A	70.0	73.3	7.1	w	106	12	7 P	10 P	.16	
10	80	7 P	58	5 A	69.0	72.0	15.1	nw	137	15				
11	77	6 P	53	6 A	65.0	82.0	4.6	sw	63	11	9 P	10 P	.01	
12	82	4 P	56	6 A	69.0	71.3	10.2	nw	115	13	11 A	12 A	.06	
13	79	1 P	56	5 A	67.5	70.7	6.3	s	99	13				
14	76	4 P	57	12 P	68.0	84.0	5.3	s	185	22	6 A	11 A	.98	
15	79	5 P	52	5 A	65.5	53.7	15.0	nw	171	15				
16	81	2 P	46	5 A	63.5	61.7	15.0	s	66	7				
17	87	5 P	55	5 A	71.0	59.7	15.0	s	114	9				
18	90	2 P	59	5 A	74.5	69.0	13.5	se	120	10				
19	89	3 P	70	5 A	79.5	68.7	5.6	s	116	11				
20	86	3 P	58	12 P	72.0	58.3	14.2	nw	103	13				
21	95	3 P	57	1 A	76.0	71.3	8.0	s	86	25	4 P	6 P	.07	
22	74	0 A	62	12 P	68.0	77.7	0.2	n	65	6	4 A	12 P	.47	
23	83	5 P	61	5 A	72.0	71.3	14.3	n	83	13	4 A	5 A	.01	
24	84	1 P	59	5 A	71.5	81.7	5.6	s	68	18	2-30 P	8-30 P	.98	
25	86	4 P	57	5 A	71.5	64.7	14.2	w	87	18				
26	85	5 P	56	6 A	70.5	67.3	12.4	s	57	22	11 P	12 P	.26	
27	84	5 P	64	2 A	74.0	79.3	10.5	nw	137	13	0 A	4 A	.17	
28	76	4 P	64	4 A	70.0	76.0	4.2	s	75	11				
29	84	3 P	66	4 A	75.0	75.3	7.6	s	154	14				
30	80	3 P	55	6 A	67.5	55.0	14.3	nw	137	15				
31	80	4 P	49	6 A	64.5	63.7	14.5	w	89	13				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 1 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

July, 1930		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.16, 5th, 16th	30.28	30.50, 1892
Minimum	29.51, 21st	29.60	29.39, 1909
Mean semi-daily	29.893	29.972	
Range	.65	0.68	0.97, 1892; 0.51, 1895, 1899
Air Temperature			
Highest	95, 21st	93.9	104, 1911
Lowest	46, 16th	45.5	34, 1889
Mean	69.9	70.6	
Monthly range	49	48.4	
Highest mean daily	79.5, 19th		
Lowest mean daily	63.5, 5th, 16th		
Mean maximum	81.6		
Mean minimum	58.1		
Greatest daily range	38, 21st		
Least daily range	12, 22nd, 28th		
Precipitation			
Precipitation. In inches	4.50	4.33	14.51, 1897; .70, 1929
Snow, in inches	....		
Maximum precipitation in 24 hrs.	.98, 14th, 24th		
Number of days on which .01 or more inches of rain fell	13	11	20, 1915; 4, 1924
Wind (miles)			
Total movement	3,455	3,435	5,097, 1909; 1,109, 1894
Greatest daily movement	192, 8th		
Least daily movement	57, 26th		
Mean hourly velocity	4.6	4.6	
Maximum velocity for 5 min (corrected to conform to 3 cup anemometer)	25, 21st	24	39, 1908, 1915
Wind (direction)			
Prevailing direction	wsw	sw	
North, days	2		
Northeast, days	0		
East, days	0		
Southeast, days	4		
South, days	10		
Southwest, days	1		
West, days	4		
Northwest, days	10		
Weather			
Mean relative humidity, per cent.	70.4	75.6	88.8, 1927; 64.8, 1893
Mean cloudiness, per cent	50	50.1	69, 1914; 31, 1924
Number of clear days	14	9	22, 1923; 0, 1915
Number of fair days	13	14	24, '09, '21; 5, '89, '23, '28
Number of cloudy days	4	8	18, 1889; 0, 1910
Number of hours bright sunshine	298.3	266	371, 1910; 182, 1889
Percent of possible hours of bright sunshine	65	58	
Thunder and lightning	6th, 9th, 11th, 26th		
Frosts			

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1929.

REMARKS

The weather during the month of July was pleasant and in most respects very near the normal for this station. The rainfall was slightly above normal being 4.50 inches. The normal for July is 4.33 inches. It is interesting to recall that in 1929 only .70 inches of rain fell in July. The heaviest rainfall recorded in July was in 1897 when 14.51 inches fell. Rain fell on 13 days. In spite of this we had more than the usual amount of sunshine. There were 14 days classified as clear, 13 as fair and only 4 as cloudy. The total hours of bright sunshine was 298.3, the normal for July being 266 hours. The highest temperature observed was 95 degrees on the 21st and the lowest 46 degrees on the 16th. The mean or average temperature for the month was 69.9 degrees as compared with a normal of 70.6 degrees. Wind movement was practically normal being 3,455 miles, while the normal is 3,435 miles. No high winds were recorded. The highest velocity was 25 miles per hour on the 21st. The prevailing direction was west south west, with 10 days recorded as south and 10 as north west. There were thunderstorms on the 6th, 9th, 11th, and 26th.

C. I. GUNNESS,
Meteorologist

F. R. SHAW,
Observer

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series | Bulletin No. 500 | August, 1930

Meteorological Observations

FOR

AUGUST

1930

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	81	6 P	49	7 A	65.0	63	14.5	s	59	7				
2	87	3 P	56	7 A	71.5	71	13.5	se	155	12				
3	93	3 P	67	6 A	80.0	68	8.4	se	161	10				
4	86	5 P	71	7 A	78.5	74	4.5	nw	179	13				
5	90	5 P	66	12 P	78.0	63	14.3	nw	136	13				
6	90	4 P	58	7 A	74.0	60	12.6	s	59	11				
7	85	5 P	57	6 A	71.0	62	11.5	se	74	15				
8	82	4 P	59	6 A	70.5	78	7.3	se	95	9	1 A	2 A	.01	
9	88	5 P	64	6 A	76.0	76	8.0	se	95	18	2 A	7 A	.14	
10	77	5 P	57	12 P	67.0	61	9.6	nw	180	20				
11	81	2 P	48	3 A	64.5	59	12.0	nw	129	14				
12	70	5 P	44	4 A	57.0	67	13.4	nw	107	14				
13	76	5 P	43	7 A	59.5	62	14.0	nw	54	5				
14	70	2 P	47	6 A	58.5	79	.7	se	106	9	6 P	12 P	.15	
15	65	4 P	58	1 A	62.5	93	0.0	se	119	9	0 A	8 P	.80	
16	72	2 P	56	12 P	64.0	92	2.0	se	58	5	10 A	8 P	.14	
17	78	4 P	50	6 A	64.0	78	10.2	sw	55	17	2 A	12 P	.20	
18	78	4 P	55	7 A	66.5	77	13.4	n	91	13	5 A	6 A	.01	
19	76	4 P	48	6 A	62.0	72	10.0	nw	58	8				
20	76	2 P	54	4 A	65.0	74	6.9	se	83	10				
21	72	3 P	56	12 P	64.0	65	5.6	ne	142	13				
22	75	4 P	51	6 A	63.0	68	12.1	ne	159	18				
23	77	7 P	59	1 A	68.0	84	0.0	ne	264	32	12 A	5 P	.06	
24	77	2 P	59	6 A	68.0	69	10.8	s	209	13				
25	81	4 P	60	6 A	70.5	74	7.6	sw	100	9				
26	82	4 P	54	6 A	68.0	76	9.8	sw	54	7				
27	84	4 P	55	6 A	69.5	62	13.5	nw	83	13				
28	85	4 A	52	6 A	68.5	69	13.4	sw	42	7				
29	84	4 P	55	6 A	69.5	86	5.2	s	82	7	4-30 P	7 P	.30	
30	83	3 P	58	12 P	70.5	72	7.3	nw	56	4	2 A	3 A	.01	
31	84	4 P	51	6 A	67.5	67	9.2	s	53	7				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 1 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

August, 1930		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.36, 31st	30.32	30.48, 1918
Minimum	28.87, 24th	29.63	29.18, 1890
Mean semi-daily	29.950	29.972	
Range	1.49	0.69	1.10, 1890; 0.44, 1894
Air Temperature			
Highest	93, 3rd	91.3	100, 1918
Lowest	43, 13th	42.9	37, 1894, 1908
Mean	67.8	68.4	
Monthly range	50	48.4	
Highest mean daily	80, 3rd		
Lowest mean daily	57, 12th		
Mean maximum	80.2		
Mean minimum	55.4		
Greatest daily range	33, 11, 13, 28, 31st		
Least daily range	7, 15th		
Precipitation			
Precipitation. In inches	1.82	4.24	8.28, 1915; 0.31, 1894
Snow, in inches			
Maximum precipitation in 24 hrs.	.95, 14th, 15th		
Number of days on which .01 or more inches of rain fell	10	10	16, 1892; 4, 1899
Wind (miles)			
Total movement	3,297	3,099	4,271, 1910; 1,920, 1894
Greatest daily movement	264, 23rd		
Least daily movement	42, 28th		
Mean hourly velocity	4.4	4.2	
Maximum velocity for 5 min (corrected to conform to 3 cup anemometer)	32, 23rd	21	35, 1915
Wind (direction)			
Prevailing direction	south	sw	
North, days	1		
Northeast, days	3		
East, days	0		
Southeast, days	9		
South, days	5		
Southwest, days	4		
West, days	0		
Northwest, days	9		
Weather			
Mean relative humidity, per cent	71.6	78.4	87.3, 1927; 69.9, 1894
Mean cloudiness, per cent	50	49.4	67, 1901; 27, 1923
Number of clear days	16	9	17, 1921; 0, 1915
Number of fair days	10	13	25, 1912; 5, 1893
Number of cloudy days	5	9	18, '01, '28; 2, '10, '23
Number of hours bright sunshine	281.3	236	317, 1921; 152, 1915, 1929
Percent of possible hours of bright sunshine	65	55	
Thunder and lightning 8th, 9th, 16th, 18th, 29th.			

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1929.

REMARKS

The outstanding feature of the weather during the month of August was the large amount of clear, dry weather. The rainfall during the month was only 1.82 inches while the normal rainfall for August is 4.24 inches. It may be recalled that last year we had only 1.54 inches in August. Conditions are not as dry as last year due to heavier rainfall in June and July. The mean temperature for the month was 67.8 degrees which is slightly lower than usual, the normal being 68.4 degrees. The highest temperature observed was 93 degrees on the 3rd which is higher than usually observed in August. The lowest temperature was 43 degrees on the 13th. The number of hours of bright sunshine was 281.3 as compared with a normal of 236 hours. The relative humidity was 71.6 per cent. The state of weather was recorded as follows: 16 clear days, 10 fair days and 5 cloudy days. The wind movement was 3297 miles which is slightly higher than normal. The highest wind velocity was observed on the 23rd when it reached a velocity of 32 miles per hour. There was thunder and lightning on the 8th, 9th, 16th, 18th and 29th.

C. I. GUNNESS,
Meteorologist

F. R. SHAW,
Observer

MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 501 September, 1930

Meteorological Observations

FOR

SEPTEMBER

1930

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	74	5 P	61	8 A	67.5	89	0.5	se	80	7	0 A	10 A	.42	
2	87	4 P	64	6 A	75.5	82	7.2	se	71	10	11 P	12 P	.10	
3	82	2 P	57	12 P	69.5	76	11.3	se	146	25				
4	73	3 P	49	6 A	61.0	64	13.1	nw	110	15				
5	77	3 P	42	6 A	59.5	70	12.9	se	96	13				
6	81	3 P	53	7 A	67.0	80	5.1	se	96	20	5 P	9 P	.20	
7	74	4 P	57	7 A	65.5	73	7.1	se	52	10				
8	73	3 P	47	12 P	60.0	64	11.0	nw	117	17	0 A	5 A	.33	
9	72	4 P	41	6 A	56.5	70	12.7	nw	69	13				
10	71	3 P	47	7 A	59.0	65	12.8	nw	92	15	3 A	4 A	.01	
11	73	4 P	41	6 A	57.0	80	2.1	se	48	8				
12	83	3 P	56	7 A	69.5	76	12.7	se	122	11				
13	69	2 P	62	7 A	65.5	82	0.0	ne	95	8				
14	73	5 P	56	6 A	64.5	89	1.4	se	81	8				
15	83	4 P	66	6 A	74.5	85	4.0	se	170	13				
16	88	2 P	68	12 P	78.0	86	5.3	se	114	8	3 A	10 P	.36	
17	82	2 P	62	12 P	72.0	80	3.9	se	115	10				
18	72	3 P	52	6 A	62.0	53	8.5	w	155	20				
19	74	4 P	44	6 A	59.0	72	12.3	w	76	8				
20	79	3 P	44	6 A	61.5	73	11.1	se	85	8				
21	78	5 P	60	6 A	69.0	84	5.2	s	103	13	7-30 P	8 P	.50	
22	79	4 P	52	7 A	65.5	76	10.0	w	85	12				
23	77	3 P	48	6 A	62.5	63	12.2	n	106	12				
24	76	3 P	44	7 A	60.0	72	12.1	s	68	8				
25	76	2 P	61	2 A	68.5	89	0.0	nw	69	7	6 A	6 P	.13	
26	86	5 P	61	7 A	73.5	84	8.0	se	48	7	7 A	7-30 A	.01	
27	75	1 P	48	12 P	61.5	71	7.6	nw	157	14	6 A	8 A	.02	
28	70	1 P	42	7 A	56.0	61	11.4	sw	115	13				
29	63	3 P	35	7 A	49.0	73	10.0	s	63	11				
30	61	2 P	40	12 P	50.5	62	9.0	nw	118	18				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

September, 1930		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.33, 1st	30.45	30.65, 1924
Minimum	29.64, 27th	29.59	29.32, 1900
Mean semi-daily	29.981	30.068	
Range	.69	0.86	1.20, 1924; 0.57, 1910
Air Temperature			
Highest	88, 16th	87.4	97.0, 1895, 1929
Lowest	35, 29th	32.8	24.5, 1914
Mean	64	61.6	
Monthly range	53	54.6	
Highest mean daily	78, 16th		
Lowest mean daily	49, 29th		
Mean maximum	76.0		
Mean minimum	52.0		
Greatest daily range	35, 5th, 20th		
Least daily range	7, 13th		
Precipitation			
Precipitation. In inches	2.08	3.79	8.74, 1907; 0.52, 1914
Snow, in inches			
Maximum precipitation in 24 hrs.	.50, 21st		
Number of days on which .01 or more inches of rain fell	10	9	15, 1918; 3, 1903
Wind (miles)			
Total movement	2,922	3,252	4,686, 1896; 1,414, 1894
Greatest daily movement	170, 15th		
Least daily movement	48, 11th, 26th		
Mean hourly velocity	4	4.5	
Maximum velocity for 5 min (corrected to conform to 3 cup anemometer)	25, 3rd	22	39, 1915
Wind (direction)			
Prevailing direction	sse	wsw	
North, days	1		
Northeast, days	1		
East, days	0		
Southeast, days	14		
South, days	3		
Southwest, days	1		
West, days	3		
Northwest, days	7		
Weather			
Mean relative humidity, per cent	74.8	80.0	89, 1927; 70.7, 1892
Mean cloudiness, per cent	51	48.7	65, 1889; 27, 1908, 1914
Number of clear days	15	9	18, 1891; 2, 1907, 1928
Number of fair days	10	11	19, '1908; 3, 1889
Number of cloudy days	5	10	19, '89, '07; 4, '08, '16
Number of hours bright sunshine	240.5	202.5	255, 1916; 110, 1907
Percent of possible hours of bright sunshine	65	54	
First frost		19	Aug. 22, '94, '95; Oct. 13, '09
Thunder and lightning	6th, 21st		

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1929.

REMARKS

The weather during the month of September was unusually pleasant with a large amount of sunshine, a very light rainfall and higher temperature than normal. The average temperature for the month was 64 degrees, the normal being 61.6 degrees. The highest temperature was 88 degrees on the 16th and the lowest was 35 degrees on the 29th. There was no frost during the month. The normal time for the first frost is September 19. The precipitation for the month was 2.08 inches, while the normal precipitation for September is 3.79 inches. The lack of rain is again affecting the water supply in many communities.

There was a total of 240.5 hours of sunshine during the month. This is well above the average as the normal amount is 202.5 hours for this station. There were 15 clear days and 10 fair days, leaving only 5 to be recorded as cloudy. The total wind movement for the month was 2922 miles as compared with a normal of 3252 miles. There were no high winds and the prevailing direction was south southeast.

C. I. GUNNESS,
Meteorologist

K. M. WHEELER,
Observer

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 502 October, 1930

Meteorological Observations

FOR

OCTOBER

1930

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum:											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	60	3 P	32	7 A	46.0	74	8.7	nw	102	13				
2	64	3 P	33	6 A	48.5	70	11.7	nw	105	18				
3	64	4 P	37	6 A	50.5	72	7.3	nw	114	14				
4	61	3 P	37	7 A	49.0	63	11.6	nw	198	17				
5	64	5 P	36	7 A	50.0	65	6.2	nw	123	22				
6	71	4 P	39	7 A	55.0	65	11.6	nw	132	17				
7	71	5 P	35	7 A	53.0	68	11.5	w	66	7				
8	65	2 P	40	6 A	52.5	71	4.5	e	95	10				
9	65	4 P	44	12 P	54.5	79	1.5	nw	110	9				
10	76	4 P	40	6 A	58.0	76	9.4	nw	99	17				
11	76	3 P	49	7 A	62.5	69	11.3	nw	118	11				
12	81	4 P	44	6 A	62.5	80	11.3	se	34	6				
13	83	3 P	41	6 A	62.0	74	11.2	s	49	8				
14	79	3 P	43	7 A	61.0	71	4.3	w	64	15				
15	60	9 A	52	12 P	56.0	82	0.0	n	164	14	1 A	8 P	.15	
16	66	4 P	45	12 P	55.5	76	2.4	nw	171	13	3-30 A	4 A	.02	
17	69	3 P	39	7 A	54.0	84	5.9	s	55	17	9 P	12 P	.35	
18	55	1 P	32	12 P	43.5	64	6.3	w	217	25	0 A	3-30 A	.10	
19	48	3 P	31	7 A	39.5	55	5.0	sw	144	15				
20	47	2 P	28	7 A	37.5	54	8.1	w	158	22				
21	47	3 P	23	7 A	35.0	68	3.1	w	97	14				
22	50	3 P	25	5 A	39.5	65	7.5	se	84	17				
23	57	2 P	21	7 A	39.0	65	6.5	se	65	7				
24	49	1 P	38	10 P	43.5	96	0.0	nw	103	22	3-30 A	4 P	.22	
25	44	6 P	34	7 A	39.0	86	0.0	nw	392	32	3 A	2 P	.70	T
26	57	2 P	34	12 P	45.5	61	10.3	nw	308	25				
27	57	3 P	25	7 A	41.0	70	6.8	se	80	9				
28	56	4 P	41	1 A	48.5	90	0.2	nw	66	5	7 A	10 A	.04	
29	51	1 P	36	4 A	43.5	98	0.0	nw	43	5	10 A	3 P	.02	
30	55	2 P	40	12 P	47.5	66	1.2	nw	80	11				
31	43	4 A	32	11 P	37.5	96	0.0	n	93	9	4-30 A	2 P	.64	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

October, 1930		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.40, 7th	30.53	30.68, 1929
Minimum	29.40, 25th	29.42	29.00, 1926
Mean semi-daily	30.060	30.059	
Range	1.00	1.11	1.47, 1926; 0.76, 1899
Air Temperature			
Highest	83, 13th	79.7	90.5, 1908
Lowest	21, 23rd	23.4	18.0, 1904
Mean	48.9	50.4	
Monthly range	62	56.3	
Highest mean daily	62.5, 11th, 12th		
Lowest mean daily	35, 21st		
Mean maximum	61.0		
Mean minimum	36.3		
Greatest daily range	42, 13th		
Least daily range	8, 15th		
Precipitation			
Precipitation. In inches	2.24	3.35	8.81, 1911; 0.01, 1924
Snow, in inches	Trace		
Maximum precipitation in 24 hrs.	.70, 25th		
Number of days on which .01 or more inches of rain fell	9	8	15, 1913; 1, 1897, 1924
Wind (miles)			
Total movement	3,729	4,023	5,467, 1910; 2,540, 1894
Greatest daily movement	392, 25th		
Least daily movement	34, 12th		
Mean hourly velocity	5	5.4	
Maximum velocity for 5 min (corrected to conform to 3 cup anemometer)	32, 25th	27	35, 1906, 1916, 1925
Wind (direction)			
Prevailing direction	nw	w	
North, days	2		
Northeast, days	0		
East, days	1		
Southeast, days	4		
South, days	2		
Southwest, days	1		
West, days	5		
Northwest, days	16		
Weather			
Mean relative humidity, per cent	73.0	76.9	86.7, 1920; 64, 1929
Mean cloudiness, per cent	45	47.6	64, 1890, 1900; 18, 1924
Number of clear days	11	8	14, 1897, 1916; 1, 1911
Number of fair days	10	11	17, '24; 5, '94, '96, '98, '03, '17
Number of cloudy days	10	12	19, 1896; 3, 1924
Number of hours bright sunshine	185.4	171.0	232, 1923; 91, 1913
Percent of possible hours of bright sunshine	54	50	
Thunder and lightning			
Frosts	1, 2, 4, 7, 19, 20, 21, 22, 23, 27		

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1929.

REMARKS

The weather during October was pleasant with a large number of clear days and a small amount of rain. The rainfal during the month was 2.24 inches as compared with a normal rainfall of 3.35 inches in October. The total rainfall during the three months of August, September and October for this year was 6.14 inches. The normal rainfall during these months is 11.38 inches. The result is that many wells have gone dry, causing considerable inconvenience on farms. The total rainfall during the year to date is 27.77 inches, the normal being 36.60 inches. It may be interesting to note that in 1908 and 1924 the rainfall for the same ten months was 26.57 and 26.23 inches respectively.

The mean temperature for the month was 48.9 degrees which is 1.5 degrees lower than normal. The highest temperature was 83 degrees on the 13th and the lowest 21 degrees on the 23rd. The first frost of the season occurred on October 1. The normal date for the first frost is September 19. There were 11 days recorded as clear, 10 as fair and 10 as cloudy. The total number of hours of bright sunshine was 185.4, the normal being 171 hours. The total wind movement was 3,729 miles and the prevailing direction was Northwest. The wind blew from the Northwest on 16 days. The highest velocity was 32 miles per hour on the 25th.

C. I. GUNNESS,
Meteorologist

K. M. WHEELER,
Observer

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 503 November, 1930

Meteorological Observations

FOR

NOVEMBER

1930

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	45	1 P	27	12 P	36.0	59	2.2	nw	124	18				
2	48	3 P	21	7 A	34.5	72	10.3	w	35	3				
3	50	3 P	22	7 A	36.0	74	9.9	sw	38	4				
4	48	3 P	25	5 A	36.5	82	0.0	nw	95	18	7 P	12 P	.09	
5	50	3 P	42	2 A	46.0	73	0.0	nw	191	32	0 A	10-30 P	.33	
6	43	0 A	26	12 P	34.5	58	3.6	w	413	39				
7	39	2 P	26	7 A	32.5	51	10.1	sw	299	28				
8	52	1 P	26	3 A	39.0	57	1.3	s	98	10				
9	64	3 P	36	7 A	50.0	48	5.4	se	138	25				
10	53	0 A	27	12 P	40.0	58	7.9	n	208	20				
11	48	3 P	20	7 A	34.0	73	8.0	se	75	8				
12	56	2 P	37	1 A	46.5	76	1.7	s	136	12	6 P	12 P	.04	
13	63	3 P	47	8 A	55.0	86	2.7	s	95	8				
14	65	2 P	50	5 A	57.5	79	2.8	se	63	6				
15	56	2 P	46	12 P	51.0	92	0.0	ne	75	8	2 A	12 P	.85	
16	50	1 P	46	6 A	48.0	88	0.0	nw	122	11	0 A	12 P	.34	
17	50	2 P	45	4 A	47.5	93	0.0	nw	176	14	0 A	12 P	1.22	
18	48	1 P	43	7 A	45.5	81	0.0	nw	183	12	0 A	8 A	.06	
19	57	3 P	34	12 P	45.5	71	7.3	n	97	6				
20	42	3 P	30	12 P	36.0	95	0.0	sw	39	3				
21	45	12 P	30	2 A	37.5	93	0.5	s	37	9				
22	65	2 P	44	0 A	54.5	70	9.6	s	132	20				
23	55	3 P	32	12 P	43.5	70	9.5	w	120	8				
24	52	2 P	26	8 A	39.0	81	6.5	nw	58	7	10-30 P	12 P	.06	
25	45	10 A	32	12 P	38.5	77	0.0	w	128	17	0 A	1-30 P	.26	T
26	45	2 P	27	12 P	36.0	64	2.5	sw	154	15	0 A	5 A	.01	.25
27	31	12 M	19	12 P	25.0	80	1.2	nw	149	28	6 A	8 A	.02	.50
28	24	2 P	16	12 P	20.0	63	5.5	w	146	17				T
29	30	12 P	5	8 A	17.5	52	7.7	s	141	15				
30	54	11 P	30	0 A	42.0	70	0.0	s	289	25	3 P	12 P	.14	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

November, 1930		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.78, 29th	30.58	30.86, 1896
Minimum	29.07, 25th	29.34	28.73, 1904
Mean semi-daily	30.182	30.046	
Range	1.71	1.29	1.84, 1904; 0.98, 1890
Air Temperature			
Highest	65, 14th, 22nd	65.3	75.0, 1924
Lowest	5, 29th	13.8	3.5, 1891
Mean	40.2	38.6	
Monthly range	60	51.4	
Highest mean daily	57.5, 14th		
Lowest mean daily	17.5, 29th		
Mean maximum	49.1		
Mean minimum	31.2		
Greatest daily range	28, 3rd, 9th, 11th		
Least daily range	4, 16th		
Precipitation			
Precipitation. In inches	3.42	3.45	8.64, 1927; 0.63, 1917
Snow, in inches	0.75	2.05	9,24;t,89,93,03,12,18,19,22,27
Maximum precipitation in 24 hrs.	1.22, 17th		
Number of days on which .01 or more inches of rain fell	12	9	22, 1921; 2, 1904
Wind (miles)			
Total movement	4,054	4,564	5,978, 1906; 2,589, 1889
Greatest daily movement	413, 6th		
Least daily movement	35, 2nd		
Mean hourly velocity	5.6	6.3	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	39, 6th	29	40, 1915
Wind (direction)			
Prevailing direction	wsw	w	
North, days	2		
Northeast, days	1		
East, days	0		
Southeast, days	3		
South, days	7		
Southwest, days	4		
West, days	5		
Northwest, days	8		
Weather			
Mean relative humidity, per cent	73.0	76.3	85.9, 1907; 67.8, 1890
Mean cloudiness, per cent	64	53.5	72, '00, '27; 34, 1917
Number of clear days	9	6	15, 1903; 1, 1900, 1911, 1927
Number of fair days	4	9	16, 1912; 4, 1889
Number of cloudy days	17	15	24, 1927; 9, 1890, 1905, 1917
Number of hours bright sunshine	116.2	121.0	182, 1903; 66, 1927
Percent of possible hours of bright sunshine	40	41	
Thunder and lightning			
Frosts			

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1898 to 1929.

REMARKS

The weather during the month of November was marked with unusual range in temperature, with very high temperatures from the 12th to the 19th. During this period the mean temperature ranged about 10 degrees higher than normal. The maximum temperature for the month was 65 degrees on the 14th and 22nd. The lowest temperature was 5 degrees on the 29th. The normal minimum for the month is 13.8 degrees. There was skating on the college pond on the 29th. The mean temperature for the month was 40.2 degrees, the normal for the month being 38.6 degrees. The monthly range in temperature was 60 degrees, whereas the normal range is 51.4 degrees.

The rainfall for the month was 3.42 inches which is practically normal, the normal being 3.45 inches. Three-fourths of an inch of snow fell but stayed only for a short time, and there was no snow on the ground at the end of the month. The normal snowfall in November is 2.05 inches. The barometer showed more than the normal range, with a minimum of 29.07 during the storm on the 29th, followed by a maximum of 30.78 on the 29th. This gave a range of 1.71 inches, while the normal range is 1.29 in November.

There was less than the normal amount of sunshine, with a total of 116.2 hours. The normal is 121 hours. There were 9 days recorded as clear, 4 as fair, and 17 as cloudy. The mean relative humidity was 73 percent. The total wind movement was 4054 miles, compared with a normal of 4564 miles. The maximum velocity was 39 miles per hour on the 6th. The prevailing direction was west southwest.

C. I. GUNNESS,
Meteorologist

K. M. WHEELER,
Observer

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 504 December, 1930

Meteorological Observations

FOR

DECEMBER

1930

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	45	2 P	22	12 P	33.5	63	2.8	w	239	32	0 A	7 A	.10	
2	18	3 P	9	8 A	13.5	49	9.3	nw	382	28				
3	38	3 P	12	5 A	25.0	51	7.4	se	161	14				
4	39	1 P	31	8 A	35.0	63	0.0	ne	85	10				
5	37	1 P	31	8 A	34.0	64	0.0	n	92	13				
6	39	4 P	31	6 A	35.0	68	0.0	n	108	10				
7	40	3 P	34	6 A	37.0	80	0.0	nw	115	11				
8	42	11 A	34	7 P	38.0	76	0.0	nw	113	22				T
9	45	9 P	34	4 A	39.5	63	0.0	w	195	32				
10	44	3 P	27	12 P	35.5	54	8.5	nw	279	25				
11	32	2 P	24	1 A	28.0	68	0.0	nw	73	8	1 P	12 P	.20	1.25
12	35	1 P	31	0 A	33.0	92	0.0	nw	76	28	0 A	6-30 P	.18	
13	28	2 P	19	12 P	23.5	65	7.6	nw	266	18				
14	26	12 P	15	6 A	20.5	76	0.0	nw	172	22				
15	25	0 A	11	12 P	18.0	65	3.1	nw	253	22				T
16	20	3 P	1	9 A	10.5	59	9.1	nw	204	18				
17	41	3 P	8	7 A	24.5	73	8.0	se	69	7				
18	43	3 P	21	9 A	32.0	60	6.5	nw	74	11				
19	38	3 P	19	4 A	28.5	87	0.8	se	55	9	7-30 P	12 P	.11	1.00
20	45	2 P	29	8 A	37.0	80	3.3	w	66	18	0 A	5 A	.17	2.00
21	39	4 P	29	9 A	34.0	73	4.3	se	75	7				
22	41	3 P	14	8 A	27.5	86	7.7	s	47	13				
23	30	3 P	24	0 A	27.0	87	0.0	n	190	15	3 A	2 P	.24	4.00
24	30	1 P	17	12 P	23.5	86	0.4	nw	118	12	6 A	10 A	.06	1.00
25	33	3 P	2	8 A	17.5	75	8.6	se	97	13				
26	37	12 M	26	3 A	31.5	73	0.0	se	145	18	5-30 P	12 P	.14	0.50
27	34	4 A	26	12 P	30.0	87	0.0	nw	249	18	2-30 A	2 P	.43	4.00
28	35	1 P	25	4 A	30.0	80	0.0	n	116	20				
29	30	3 P	14	12 P	22.0	100	3.6	se	61	3				
30	31	3 P	14	0 A	22.5	71	0.6	nw	28	18				T
31	33	2 P	14	7 A	23.5	66	8.5	se	152	14				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

December, 1930		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.64, 2nd, 3rd	30.65	30.96, 1889
Minimum	29.38, 9th	29.25	28.85, 1915
Mean semi-daily	29.706	30.056	
Range	1.26	1.40	1.78, 1895; 1.01, 1892
Air Temperature			
Highest	45, 1st, 9th, 20th	54.5	65.5, 1908
Lowest	1, 16th	-2.3	-22.5, 1917
Mean	28.1	27.3	
Monthly range	44	56.8	
Highest mean daily	39.5, 9th		
Lowest mean daily	10.5, 16th		
Mean maximum	35.3		
Mean minimum	20.9		
Greatest daily range	33, 17th		
Least daily range	4, 12th		
Precipitation			
Precipitation. In inches	1.63	3.47	7.77, 1901; 0.87, 1896
Snow, in inches	13.75	8.99	26.50, 01, 02; t, 1891
Maximum precipitation in 24 hrs.	.57, 26th, 27th		
Number of days on which .01 or more inches of rain fell	9	9	17, 1902; 4, 1892
Wind (miles)			
Total movement	4,355	4,726	6,694, 1925; 3,239, 1918
Greatest daily movement	382, 2nd		
Least daily movement	28, 30th		
Mean hourly velocity	6.0	6.4	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	32, 1st, 9th	29	41, 1928
Wind (direction)			
Prevailing direction	nw	wnw	
North, days	4		
Northeast, days	1		
East, days	0		
Southeast, days	8		
South, days	1		
Southwest, days	0		
West, days	3		
Northwest, days	14		
Weather			
Mean relative humidity, per cent	72.0	77.2	87.1, 1919; 67.2, 1890
Mean cloudiness, per cent	67	53.4	68, 1897; 39, 1919
Number of clear days	10	8	15, 1890; 2, 1922
Number of fair days	4	10	16, 1909; 4, 1889
Number of cloudy days	17	13	19, 1911, 1922; 7, 1909, 1923
Number of hours bright sunshine	100.0	130.7	172, 1896; 86, 1922
Percent of possible hours of bright sunshine	35	46	
Thunder and lightning			
Frosts			

NOTE—The first column in the above summary gives observations made during the month. The second and third columns give the averages and extremes observed from 1889 to 1929.

ANNUAL SUMMARY

Annual, 1930		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.78, Nov. 29	30.81	31.00, 1927
Minimum	29.87, Aug. 24	28.95	28.47, 1914
Mean semi-daily	29.978	30.016	
Range	1.91	1.86	2.33, 1913; 1.55, 1923
Air Temperature			
Highest	95, July 21	95.8	101, 1919
Lowest	–6, Feb. 6	–12.1	–26.0, 1904
Mean	48.6	47.2	49.6, 1913; 44.0. 1904
Range	101	108.0	
Highest mean daily	80, Aug. 3rd		
Lowest mean daily	4, Feb. 6		
Mean maximum	59.0	58.1	
Mean minimum	38.0	36.1	
Greatest daily range	42, June 3, Oct. 13		
Least daily range	2, April 23		
Precipitation			
Precipitation. In inches	32.82	43.40	57.05, 1897; 30.68, 1908
Snow, in inches	29.50	48.38	78.00, 1920; 24.50, 1919
Maximum precipitation in 24 hrs.	1.64, June 9		
Number of days on which .01 or more inches of rain fell	130	123	144, 1902, 96, 1924
Wind (miles)			
Total movement	50,966	52,321	63,571, 1908; 36,257, 1894
Greatest daily movement	475, Mar. 14		
Least daily movement	28,Dec. 30		
Mean hourly velocity	5.8	6.0	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	39, Jan. 9, Nov. 6	35	42, 1912
Wind (direction)			
Prevailing direction	sw	w	
North, days	18		
Northeast, days	6		
East, days	12		
Southeast, days	96		
South, days	46		
Southwest, days	35		
West, days	64		
Northwest, days	88		
Weather			
Mean relative humidity, per cent	69.0	75.8	82.9, 1927; 66.8, 1891
Mean cloudiness, per cent	55	50.8	60, '98, '01, '02; 41, '08, '24
Number of clear days	163	109	145, 1891; 59, 1927
Number of fair days	100	128	182, 1912; 83, 1894
Number of cloudy days	102	128	192, 1920; 71, 1910
Number of hours bright sunshine	2,628	2,356	2,793, 1910; 1864, 1902
Percent of possible hours of bright sunshine	59	53	
Last Frosts	May 31st	M'y 12	Apr. 23, 1904; June 3, 1908
First Frost	Oct. 1st	S't 19	Aug. 22, 1894; Oct. 13, 1909
Last snow	April 24th	Apr14	Mar. 14, '10; May 5, '91, '17
First snow	Oct. 25th	Nov 5	Oct. 10, '25; Nov. 26, '91

NOTE—The first column in the above summary gives observations made during the year. The second and third columns give the averages and extremes observed from 1889 to 1929.

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 505 January, 1931

Meteorological Observations

FOR

JANUARY
1931

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	30	1 P	16	12 P	23.0	72	7.0	nw	89	25				
2	32	9 P	5	7 A	18.5	74	9.1	se	127	8				
3	34	8 P	2	8 A	18.0	73	7.1	se	54	8				
4	43	3 P	25	7 A	34.0	75	1.5	se	73	5				
5	40	5 P	17	5 A	28.5	88	0.0	ne	49	17	5 P	12 P	.68	
6	37	0 A	26	12 P	31.5	91	0.0	nw	242	28	0 A	3 P	.30	T
7	26	0 A	17	12 P	21.5	68	2.2	nw	362	39				
8	31	3 P	12	5 A	21.5	60	9.2	nw	162	15				
9	32	5 P	8	8 A	20.0	71	8.4	w	48	5				
10	38	4 P	16	8 A	27.0	67	9.0	nw	100	20				
11	35	3 P	22	12 P	28.5	64	3.7	w	195	28				
12	32	11 P	19	3 A	25.5	96	0.0	nw	42	10	6 A	9 P	.71	6.25
13	37	1 P	15	8 A	26.0	73	7.7	w	121	20				
14	38	1 P	9	7 A	23.5	71	9.3	w	118	18				
15	18	3 P	10	12 P	14.0	69	9.4	n	207	17				
16	28	3 P	-9	8 A	9.5	74	9.4	s	55	9				
17	40	1 P	20	0 A	30.0	69	1.3	w	200	25				
18	36	1 P	16	12 P	26.0	68	3.5	nw	159	14				
19	32	12 P	13	0 A	22.5	95	0.0	nw	127	18	5-30 A	6 P	.88	5.0
20	39	11 A	22	12 P	30.5	71	2.0	sw	124	13				
21	32	11 A	17	12 P	24.5	68	3.4	w	180	22				
22	23	2 P	5	12 P	14.0	64	9.6	nw	137	14				
23	29	6 P	-2	8 A	13.5	73	1.9	s	75	25				
24	19	3 P	8	8 A	13.5	65	9.6	nw	192	17				
25	31	12 P	-6	2 A	12.5	73	0.0	se	78	10				
26	41	11 A	26	12 P	33.5	64	5.7	nw	225	25				
27	49	2 P	19	6 A	34.0	73	5.7	se	102	15				
28	40	0 A	22	12 P	31.0	69	5.5	nw	163	20				
29	31	8 P	13	4 A	22.0	84	0.0	nw	45	28	8 A	1-30 P	.19	2.0
30	24	0 A	7	8 A	15.5	70	5.0	sw	194	8	3 P	12 P	.30	3.0
31	21	2 P	10	8 A	15.5	84	6.0	nw	211	22	0 A	10 A	.52	4.5

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

January, 1931		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.48, 15th	30.71	31.00, 1927
Minimum	28.96, 6th	29.18	28.55, 1913
Mean semi-daily	29.974	30.07	
Range	1.52	1.54	2.18, 1913; 0.97, 1896
Air Temperature			
Highest	49, 27th	50.4	61.5, 1890
Lowest	-9, 16th	-7.4	-23.0, 1907
Mean	22.9	24.1	
Monthly range	58	58.2	
Highest mean daily	34, 27th		
Lowest mean daily	9.5, 16th		
Mean maximum	32.8		
Mean minimum	12.9		
Greatest daily range	37, 25th		
Least daily range	8, 15th		
Precipitation			
Precipitation. In inches	3.58	3.42	7.15, 1898; 1.07, 1896
Snow, in inches	20.75	13	33, 1898, 1923; 1.75, 1911
Maximum precipitation in 24 hrs.	.88 19th		
Number of days on which .01 or more inches of rain fell	7	11	18, 1923; 4, 1889
Wind (miles)			
Total movement	4,256	5,068	7,770, 1908; 2,896, 1895
Greatest daily movement	362, 7th		
Least daily movement	45, 29th		
Mean hourly velocity	5.7	6.8	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	39, 7th	30	40, 1913
Wind (direction)			
Prevailing direction	wnw	wnw	
North, days	1		
Northeast, days	1		
East, days	0		
Southeast, days	5		
South, days	2		
Southwest, days	2		
West, days	6		
Northwest, days	14		
Weather			
Mean relative humidity, per cent	73.4	78.2	85.3, 1927; 68.2, 1890
Mean cloudiness, per cent	51	54	66, 1898; 38, 1922
Number of clear days	12	8	16, 1922; 2, 1914
Number of fair days	8	10	18, 1890, 1926; 3, 1916
Number of cloudy days	11	13	22, 1923; 4, 1920
Number of hours bright sunshine	152	140	214, 1920; 76, 1923
Percent of possible hours of bright sunshine	52	47.6	

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1930.

REMARKS

The month of January has been marked with more severe winter weather than usual. The ground has been covered with snow throughout the month and the snow fall has been greater than normal. A total of 20.75 inches fell during the month. The normal snow fall for January is 13 inches. The greatest snow fall recorded for January was in 1898 and 1923 when 33 inches fell. The mean temperature during the month was 22.9 degrees while the normal is 24.1 degrees. The lowest temperature observed was -9 degrees on the 16th. The normal minimum for January is -7.4 degrees. In 1907 the temperature dropped to -23 degrees in January. There was less than the usual amount of wind, the total wind movement being 4,256 miles while the normal is 5,068 miles. The highest velocity observed was 39 miles per hour on the 7th. The prevailing direction was west north west, the wind blowing from the north west on 14 days. There was more than the usual amount of sunshine with a total of 152 hours. The normal amount is 140 hours in January.

C. I. GUNNESS,
Meteorologist

K. M. WHEELER,
Observer

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 506 February, 1931

Meteorological Observations
FOR
FEBRUARY
1931

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	19	2 P	–5	8 A	7.0	67	10.0	sw	100	14	8 P	12 P	.02	.25
2	25	2 P	6	12 P	15.5	80	3.6	nw	131	22	0 A	7 A	.05	.25
3	29	4 P	–11	8 A	9.0	76	10.0	s	102	12				
4	39	3 P	16	12 P	27.5	81	1.8	se	204	25				
5	28	4 P	0	8 A	14.0	66	10.1	nw	111	7				
6	39	1 P	5	3 A	22.0	76	5.3	nw	104	22				T
7	21	3 P	2	8 A	11.5	68	4.7	nw	132	15	10 P	12 P	.02	
8	25	12 P	14	4 A	19.5	99	0.0	nw	88	7	0 A	12 P	.26	1.0
9	33	12 P	22	3 A	27.5	97	0.0	nw	51	7	0 A	12 P	.59	5.0
10	32	1 A	12	12 P	22.0	76	0.0	nw	263	22				
11	28	3 P	–1	7 A	13.5	68	10.4	nw	108	13				
12	37	3 P	–2	5 A	17.5	78	2.4	n	55	9				
13	45	4 P	28	5 A	36.5	76	0.0	se	127	13	8 P	12 P	.03	
14	40	3 A	16	12 P	28.0	63	4.6	nw	318	39	0 A	7 A	.10	
15	33	12 P	8	6 A	20.5	53	2.6	n	225	25				
16	40	3 P	32	12 P	36.0	59	0.7	s	144	14				
17	43	3 P	31	1 A	37.0	79	0.3	n	84	12	8 P	12 P	.10	T
18	38	10 A	34	3 A	36.0	85	0.0	n	248	22	0 A	6 P	.34	
19	35	0 A	25	12 P	30.0	87	0.0	n	243	14	10·30 A	12 P	.12	1.5
20	30	3 P	23	3 A	26.5	89	1.3	n	178	11	0 A	10 P	.17	1.5
21	41	1 P	15	7 A	28.0	78	1.1	nw	94	17				
22	40	3 P	19	8 A	29.5	74	5.3	nw	161	22				
23	39	3 P	26	12 P	32.5	67	8.5	nw	288	20				
24	44	3 P	19	7 A	31.5	65	10.9	w	84	13				
25	47	3 P	21	7 A	34.0	55	11.0	nw	89	12				
26	47	2 P	21	8 A	34.0	64	7.9	nw	143	25				
27	35	3 P	26	12 P	30.5	66	11.0	nw	380	28				
28	48	4 P	21	4 A	34.5	60	11.1	w	123	14				

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*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

February, 1931		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.51, 7th	30.63	31.05, 1920
Minimum	29.63, 14th	29.20	28.56, 1895
Mean semi-daily	30.022	30.03	
Range	.88	1.43	1.89, 1900, 1908; .88, 1913
Air Temperature			
Highest	48, 28th	50.3	65.0, 1930
Lowest	–11, 3rd	–7.9	–22.5, 1918
Mean	25.4	23.5	
Monthly range	59	58.2	
Highest mean daily	37, 17th		
Lowest mean daily	7, 1st		
Mean maximum	35.7		
Mean minimum	15.1		
Greatest daily range	40, 3rd		
Least daily range	4, 18th		
Precipitation			
Precipitation. In inches	1.80	3.35	8.12, 1900; 0.62, 1901
Snow, in inches	9.50	14.27	48.75, 1893; 2.5, 1912
Maximum precipitation in 24 hrs. 9th	.59		
Number of days on which .01 or more inches of rain fell	11	10	15, 1893, 1920; 4, 1901
Wind (miles)			
Total movement	4,378	4,833	6,445, 1896; 3,438, 1892
Greatest daily movement	380, 27th		
Least daily movement	51, 9th		
Mean hourly velocity	6.5	7.1	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	39,14th	29	42, 1912
Wind (direction)			
Prevailing direction	nw	wnw	
North, days	6		
Northeast, days	0		
East, days	0		
Southeast, days	2		
South, days	2		
Southwest, days	1		
West, days	2		
Northwest, days	15		
Weather			
Mean relative humidity, per cent	73.3	77.9	90, 1889; 66.8, 1902
Mean cloudiness, per cent	55	50.5	66, 1890, 1927; 31, 1905
Number of clear days	10	10	17, 1924; 2, 1927
Number of fair days	5	8	16, 1920; 3, 1890
Number of cloudy days	13	10	16, 1894; 2, 1920
Number of hours bright sunshine	134.6	160	221, 1924; 110, 1927
Percent of possible hours of bright sunshine	46	54.4	

REMARKS

The weather during the first half of February was considerably colder than normal, with the lowest temperature -11 on the 3rd. During the second half of the month the temperature was higher than usual, so that the mean for the month was 25.4 degrees. The normal mean temperature for February is 23 5 degrees. In 1930 the mean temperature in February was 29.2 degrees, with the highest temperature 65 degrees on the 20th. The highest temperature observed this past month was 48 degrees on the 28th.

The total precipitation during the month was only 1.80 inches as compared with a normal of 3.35 inches. In 1930 the precipitation in February was 1.39 inches. The snowfall during February was 9.5 inches, while the normal snowfall in February is 14.27 inches. The snowfall to date during the winter is 44.75 inches. The normal snowfall to the end of February is 38.31 inches. There was about 11 inches of snow on the ground on February 1. This has been reduced to about 4 inches on the 8th. Snow on the 8th and 9th again brought the snow depth to 10 inches. This had melted gradually so that at the end of the month there was less than 1 inch of snow on the ground. with many fields bare.

There was less than the normal amount of sunshine, only 134.6 hours being recorded. The normal sunshine during February is 160 hours. The last week of the month, however, was continuously clear. Ten days were recorded as clear, five fair, thirteen cloudy. The relative humidity was 73.3 per cent. The total wind movement was 4378 miles, compared with a normal of 4833 miles. The highest velocity was 39 miles per hour on the 14th. The prevailing direction was northwest. The wind blew from the northwest on 15 days and from the north on 6 days.

C. I. GUNNESS,
Meteorologist

K. M. WHEELER,
Observer

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 507 March, 1931

Meteorological Observations

FOR

MARCH

1931

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	40	5 P	22	6 A	31.0	73	0.3	sw	30	14				
2	41	5 P	25	8 A	33.0	66	9.3	nw	137	13				
3	41	2 P	18	7 A	29.5	73	8.5	n	185	25				
4	35	3 P	30	12 P	32.5	92	0.0	n	160	13	3 A	12 P	.39	3.5
5	38	5 P	28	8 A	33.0	80	6.3	nw	219	28	0 A	10 A	.29	2.0
6	39	4 P	22	4 A	30.5	67	4.0	w	187	25				
7	44	3 P	23	7 A	33.5	60	11.2	s	81	8				
8	39	12 P	32	4 A	35.5	80	0.0	e	206	25	8 A	12 P	1.08	1.0
9	42	3 P	33	7 A	38.5	65	4.7	s	195	15	0 A	3 A	.06	
10	38	3 P	31	6 A	34.5	92	0.0	nw	74	9	0 A	12 P	.14	1.0
11	36	4 P	27	6 A	31.5	67	2.4	nw	174	18				
12	37	1 P	30	6 A	33.5	64	4.5	w	231	25				
13	38	4 P	27	12 P	32.5	60	9.6	nw	280	25				
14	47	5 P	22	6 A	34.5	63	11.8	w	122	17				
15	48	12 M	31	2 A	39.5	63	5.2	e	102	14				
16	41	2 P	30	2 A	35.5	80	1.0	ne	172	22	8 A	1 P	.02	
17	40	5 P	29	1 A	34.5	65	0.3	n	133	12				
18	48	3 P	26	5 A	37.0	49	12.0	nw	313	32				
19	47	5 P	26	6 A	36.5	56	7.0	w	76	8				
20	44	4 P	32	6 A	33.0	67	4.0	nw	169	18	1 A	5 A	.04	T
21	51	5 P	32	12 P	41.5	60	10.2	nw	106	14				
22	54	2 P	25	7 A	39.5	50	9.0	w	76	7				
23	51	3 P	31	7 A	41.0	49	12.2	n	210	20				
24	58	2 P	28	7 A	43.0	47	12.2	e	185	15				
25	40	4 P	33	7 A	36.5	95	0.0	n	114	14	3 A	12 P	.69	
26	52	4 P	33	5 A	42.5	71	8.0	n	363	28	0 A	8 A	.06	
27	58	3 P	34	5 A	46.0	52	12.2	n	183	11				
28	51	4 P	28	6 A	39.5	66	0.0	nw	171	15	7 P	12 P	.05	
29	44	5 P	34	4 A	39.0	92	0.0	nw	138	13	0 A	11.30 A	.97	
30	43	3 P	35	6 A	39.0	62	0.2	sw	215	18				
31	46	3 P	30	12 P	38.0	64	2.6	nw	175	15				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

March, 1931		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.40, 28th	30.60	30.96, 1904
Minimum	29.22, 8th	29.26	28.47, 1914
Mean semi-daily	29.904	30.02	
Range	1.18	1.35	2.10, 1914; 0.85, 1915
Air Temperature			
Highest	58, 24th, 27th	63.9	79.5, 1907, 1921
Lowest	18, 3rd	5.7	–7.5, 1906
Mean	36.3	34.2	
Monthly range	40	58.2	
Highest mean daily	46, 27th		
Lowest mean daily	29.5, 3rd		
Mean maximum	44.0		
Mean minimum	29.0		
Greatest daily range	30, 24th		
Least daily range	5, 4th		
Precipitation			
Precipitation. In inches	3.79	3.68	7.13, 1899; 0.12, 1915
Snow, in inches	7.50	8.11	27, 1899; 0, 1921
Maximum precipitation in 24 hrs.	1.14 8th, 9th		
Number of days on which .01 or more inches of rain fell	11	11	17, 1890, 1913; 3, 1915
Wind (miles)			
Total movement	5,182	5,738	7,485, 1911; 3,006, 1905
Greatest daily movement	363, 26th		
Least daily movement	30, 1st		
Mean hourly velocity	6.9	7.7	
Maximum velocity for 5 min.	32,18th	29	39, 1913
Wind (direction)			
Prevailing direction	nw	wnw	
North, days	7		
Northeast, days	1		
East, days	3		
Southeast, days	0		
South, days	2		
Southwest, days	2		
West, days	5		
Northwest, days	11		
Weather			
Mean relative humidity, per cent	67.4	75.0	86.8, 1916; 61.6, 1930
Mean cloudiness, per cent	65	51.0	68, 1901 ; 27, 1915
Number of clear days	11	11	22, 1924; 3, 1901
Number of fair days	8	9	17, 1900; 4, 1895
Number of cloudy days	12	11	21, 1901; 1, 1915
Number of hours bright sunshine	168.7	201	292, 1924; 93, 1901
Percent of possible hours of bright sunshine	45.5	54.4	

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1930.

REMARKS

The weather during the month of March was marked with a very uniform temperature slightly higher than normal. The mean temperature for the month was 36.3 degrees, while the normal for March is 34.2 degrees. The highest temperature during the month was 58 degrees on the 24th and 27th, and the lowest was 18 degrees on the 3rd. The normal maximum for March is 63.9 degrees and the normal minimum is 5.7 degrees. Frost came out of the ground early with less than the usual breaking up of dirt roads, and the season as a whole is well advanced. Dr. J. K. Shaw reports as follows: "Fruit trees seem to have set fruit buds freely when the extremely heavy crop of last year is considered. Peach fruit buds have come through the winter with very moderate amount of killing. The heavy snow protected strawberries so that they and other herbaceous perennial plants have come through the winter in good condition." There was practically no snow on the ground on March 1. By March 5 there was 5½ inches on the ground. This had been reduced to 2 inches on the 8th and was completely gone by the 14th. There was a total snowfall of 7.50 inches during the month. The normal snowfall during the month is 8.11 inches. The rainfall was 3.79 inches which is .10 inches greater than usual for March.

There was less than the normal amount of sunshine with 168.7 hours. The normal amount of sunshine for March is 201 hours. The total wind movement was 5182 miles, while the normal is 5738 miles. The highest wind velocity recorded was 32 miles per hour on the 18th. There was a general storm over the state on the 8th with heavy snowfall near Amherst, but at the station only 1 inch of sleet was recorded.

C. I. GUNNESS,
Meteorologist

K. M. WHEELER,
Observer

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 508 April, 1931

Meteorological Observations
FOR
APRIL
1931

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	41	6 P	31	1 A	36.0	77	0.0	n	153	17	10-30 A	8 P	.57	
2	52	2 P	39	2 A	45.5	79	0.0	s	174	15	0 A	10 A	.05	
3	56	2 P	40	4 A	48.0	50	7.5	w	153	15	9 P	12 P	.05	
4	52	12 M	34	12 P	43.0	76	3.5	nw	153	20	1 A	4-30 A	.20	
5	53	3 P	29	5 A	41.0	52	7.5	n	122	15				
6	53	2 P	37	5 A	45.0	39	5.0	ne	200	18				
7	40	0 A	33	12 P	36.5	84	0.0	n	196	18	4-30 A	12 P	.65	1.5
8	56	5 P	32	6 A	44.0	66	8.5	nw	137	25	0 A	4 A	.22	0.5
9	66	5 P	38	5 A	54.0	45	13.0	sw	64	12				
10	67	2 P	36	5 A	51.5	66	7.6	s	294	28				
11	64	2 P	46	7 A	55.0	53	9.5	nw	330	25	3-30 A	7 A	.10	
12	53	4 P	29	6 A	41.0	36	13.2	nw	178	15				
13	70	2 P	35	6 A	52.5	49	13.3	se	240	22				
14	61	3 P	39	5 A	50.0	40	13.3	n	263	25				
15	58	3 P	32	6 A	45.0	29	13.3	n	213	22				
16	65	4 P	30	7 A	47.5	30	13.4	nw	106	12				
17	61	4 P	30	6 A	45.5	57	4.7	s	121	11				
18	65	4 P	41	4 A	53.0	45	11.8	nw	233	25				
19	72	5 P	32	5 A	52.0	41	13.5	se	65	7				
20	79	3 P	37	6 A	58.0	45	10.1	se	110	10				
21	79	4 P	37	6 A	58.0	52	11.8	se	98	14				
22	76	3 P	42	5 A	59.0	59	13.7	s	138	14				
23	54	5 P	39	12 P	46.5	79	0.0	n	171	17	9-30 P	10-30 P	.01	
24	55	4 P	34	6 A	44.5	50	9.7	nw	329	22				
25	59	1 P	27	6 A	43.0	44	7.6	se	108	14				
26	57	6 P	42	5 A	49.5	88	0.0	se	241	18	1 A	11 P	.96	
27	49	3 P	36	12 P	42.5	44	2.0	w	391	32				
28	50	2 P	34	5 A	42.0	50	2.3	w	246	20	9 P	10 P	.01	
29	50	12 M	35	12 P	42.5	64	1.3	w	229	39	3-30 A	4 P	.13	T
30	48	1 P	33	5 A	40.5	48	2.6	w	218	25				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

April, 1931		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.51, 12th	30.48	30.71, 1911
Minimum	29.30, 1st	29.41	29.07, 1930
Mean semi-daily	30.008	29.99	
Range	1.21	1.08	1.52, 1930; 0.72, 1919
Air Temperature			
Highest	79, 20th, 21st	79.5	88.5, 1896
Lowest	27, 25th	21.6	8.5, 1923
Mean	46.7	45.8	
Monthly range	52	57.8	
Highest mean daily	59, 22nd		
Lowest mean daily	36, 1st		
Mean maximum	58.7		
Mean minimum	35.3		
Greatest daily range	42, 20th, 21st		
Least daily range	7, 7th		
Precipitation			
Precipitation. In inches	2.95	3.27	6.89, 1929; 0.76, 1892
Snow, in inches	2.00	2.32	11, 1891; 0, 1910
Maximum precipitation in 24 hrs. 26th	.96		
Number of days on which .01 or more inches of rain fell	11	11	18, 1909; 3, 1892
Wind (miles)			
Total movement	5,674	5,436	8,208, 1908; 3,853, 1917
Greatest daily movement	391, 27th		
Least daily movement	64, 9th		
Mean hourly velocity	8	7.5	
Maximum velocity for 5 min.	39, 29th	29	39, 1916
Wind (direction)			
Prevailing direction	wnw	wnw	
North, days	6		
Northeast, days	1		
East, days	0		
Southeast, days	6		
South, days	4		
Southwest, days	1		
West, days	5		
Northwest, days	7		
Weather			
Mean relative humidity, per cent	55.0	69.6	81.2, 1916; 54.5, 1892
Mean cloudiness, per cent	53	49.2	75, 1901; 34, 1925, 1927
Number of clear days	13	11	19, 1911; 3, 1898, 1902
Number of fair days	7	10	18, 1915; 2, 1894, 1901
Number of cloudy days	10	9	22, 1901; 3, 1899, 1924
Number of hours bright sunshine	219.7	221	296, 1911; 103, 1901
Percent of possible hours of bright sunshine	55.0	55.0	
Frosts after the 15th: 16th, 17th, 19th, 24th, 25th, 30th.			

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1930.

REMARKS

The temperature during the first two weeks in April was very nearly normal. During the third week the temperature was considerably higher than usual, with the last week colder than usual. As a result vegetation was advanced rapidly during the third week; but the development was checked during the last week, according to Dr. Shaw. He also reports that no general damage has been done to fruit buds from the frosts near the end of the month. Peach buds were ready to open and many apple blossoms showing pink at the close of the month. Prospects for a good bloom continue good. The mean temperature for the month was 46.7 degrees compared with a normal of 45.8 degrees. The highest observed was 79 degrees on the 20th and 21st, and the lowest, 27 degrees on the 25th. The normal extremes are 79.5 degrees and 21.6 degrees respectively.

We had less than the normal amount of rainfall during the month, the total being 2.95 inches, and the normal, 3.27 inches. Two inches of snow fell during the month. Total rainfall from January 1 to April 30 is 12.12 inches. The normal precipitation for this period is 13.72 inches.

The amount of sunshine was practically normal, being 219.7 hours, the latter being 221 hours. The mean relative humidity was 55 per cent. There was slightly more than the usual wind movement, with 5674 miles, the normal being 5436 miles. The highest wind velocity observed was 39 miles per hour on the 29th. The prevailing wind direction was west northwest. There were frosts after the 15th on the 16th, 17th, 19th, 24th, 25th and 30th.

C. I. GUNNESS,
Meteorologist

K. M. WHEELER,
Observer

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series   Bulletin No. 509   May, 1931

Meteorological Observations

FOR

MAY

1931

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N.   Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft.   Above sea level, 253.5 ft.
Height of wind instruments 67 ft.   Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	57	5 P	30	5 A	43.5	43	13.9	w	127	15				
2	62	1 P	34	5 A	48.0	68	4.2	se	123	13	3.30 P	11 P	.14	
3	55	1 P	39	12 P	47.0	61	1.3	nw	262	28	0 A	6 A	.04	
4	71	4 P	30	5 A	50.0	53	14.2	s	85	10				
5	80	3 P	39	6 A	59.5	44	10.0	se	133	13				
6	80	4 P	38	6 A	59.0	41	7.4	se	98	14				
7	73	4 P	46	7 A	59.5	73	5.1	nw	135	14	5-30 A	8 A	.02	
8	72	11 A	58	1 A	65.0	72	1.0	se	205	22	12-30 P	11-30 P	.97	
9	77	5 P	54	7 A	65.5	58	12.2	sw	106	11				
10	60	0 A	42	12 P	51.0	84	0.0	n	142	25	7-30 A	12 P	1.65	
11	54	4 P	41	6 A	47.5	72	0.8	n	141	14	0 A	12 M	.11	
12	61	4 P	44	5 A	52.5	72	2.2	s	94	18	7-30 P	12 P	.08	
13	49	11 A	43	5 A	46.0	72	0.0	n	186	18	0 A	12 P	.15	
14	48	2 P	44	4 A	46.0	85	0.0	n	110	10	0 A	12 P	.62	
15	71	4 P	43	4 A	57.0	61	5.5	se	131	20	0 A	7 A	.04	
16	79	12 M	49	3 A	64.0	52	5.2	w	191	22	3-30 P	5 P	.03	
17	66	6 P	46	12 P	56.0	38	14.6	nw	191	18				
18	71	4 P	36	6 A	53.5	44	12.8	se	130	18				
19	78	4 P	49	2 A	63.5	73	7.5	se	180	15				
20	82	3 P	59	8 A	70.5	71	7.0	se	179	20				
21	66	5 P	54	12 P	60.0	85	0.0	se	143	12	7 A	1 P	.15	
22	74	5 P	50	5 A	62.0	59	11.8	nw	65	25				
23	67	6 P	55	12 P	61.0	84	0.5	se	191	25	1 A	3 P	2.57	
24	55	0 A	44	9 A	49.5	73	0.0	se	165	14	7 A	4-30 P	.03	
25	64	6 P	44	5 A	54.0	68	1.0	se	141	13			T	
26	74	3 P	52	5 A	63.0	60	11.2	nw	97	13				
27	80	4 P	45	5 A	62.5	47	15.0	sw	77	8				
28	88	6 P	48	5 A	68.0	49	11.5	sw	57	15				
29	91	3 P	54	5 A	72.5	54	11.3	w	81	13				
30	86	3 P	61	6 A	73.5	65	10.3	sw	71	18	7 P	9-30 P	.33	
31	80	3 P	61	5 A	70.5	81	3.9	s	117	12	8 A	11 P	.51	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

May, 1931		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.21, 4th, 27th	30.38	30.55, 1895
Minimum	29.55, 16th	29.51	29.16, 1893
Mean semi-daily	29.934	29.95	
Range	.66	.88	1.16, 1893; 0.60, 1899
Air Temperature			
Highest	91, 29th	85.5	94.5, 1911
Lowest	30, 1st, 4th	30.8	24.0, 1900
Mean	58.1	56.8	
Monthly range	61	54.6	
Highest mean daily	73.5, 30th		
Lowest mean daily	43.5, 1st		
Mean maximum	70.0		
Mean minimum	46.2		
Greatest daily range	42, 6th		
Least daily range	4, 14th		
Precipitation			
Precipitation. In inches	7.44	3.63	6.91, 1901; 0.48, 1903
Snow, in inches			
Maximum precipitation in 24 hrs.	2.57, 23rd		
Number of days on which .01 or more inches of rain fell	16	12	20, 1901; 5, 1903
Wind (miles)			
Total movement	4,154	4,540	5,946, 1907; 2,180, 1894
Greatest daily movement	262, 3rd		
Least daily movement	57, 28th		
Mean hourly velocity	5.6	6.1	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	28, 3rd	25	35, 1912
Wind (direction)			
Prevailing direction	s	w	
North, days	4		
Northeast, days	0		
East, days	0		
Southeast, days	12		
South, days	3		
Southwest, days	4		
West, days	3		
Northwest, days	5		
Weather			
Mean relative humidity, per cent	63	70.7	83.9, 1927; 59.3, 1891
Mean cloudiness, per cent	66	51.5	70, 1901; 30, 1923
Number of clear days	11	10	20, 1923; 0, 1927
Number of fair days	7	11	17, 1907, 1926; 5, 1923
Number of cloudy days	13	10	20, 1927; 3, 1903, 1922
Number of hours bright sunshine	200.9	250.1	334, 1922; 137, 1927
Percent of possible hours of bright sunshine	44.0	55.2	
Thunder and lightning	10th, 23rd, 31st		
Frosts	1st, 4th		
Last frost		12th	J'e 3, 1908; Apr. 23, 1904

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1930.

REMARKS

The weather during the month of May was marked with very heavy rains, relatively high temperatures, and a small amount of sunshine. There was a very heavy rain storm on the 23rd; a total of 2.57 inches of rain fell between 1 A. M. and 3 P. M. The total precipitation for the month was 7.44 inches compared with a normal rainfall of 3.63 inches for May. This is the greatest rainfall recorded in May since the station was established in 1889. The nearest approach to the present record was 6.91 inches in 1901. The total precipitation since January 1 is now 19.56 inches; the normal for this period is 17 35 inches. The mean temperature for the month was 58.1 degrees, being 1.3 degrees higher than normal. The highest temperature was 91 degrees on the 29th. In 1930 we had a temperature of 92.0 degrees on May 7 and in 1911 a temperature of 94.5 degrees was recorded in May. There were 200.9 hours of bright sunshine, the normal being 250 1 hours. Rain fell on 16 days, there usually being 12 rainy days in May. There was less than the usual amount of wind, the total wind movement being 4154 miles; the normal is 4540 miles. The prevailing wind direction was south.

Dr. Shaw reports that fruit trees came into bloom beginning May 11, which is about the average date. Weather conditions during bloom were fair but not as good as last year. Peaches seem to have set well but it is too early to tell what the set of apples will be. Planting of farm crops was a trifle earlier than usual until the heavy rains delayed work during the last week of the month. A heavy crop of hay is assured.

C. I. GUNNESS,
Meteorologist

K. M. WHEELER,
Observer

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 510 June, 1931

Meteorological Observations

FOR

JUNE

1931

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	63	5 P	56	6 A	59.5	70	0.0	n	127	14	1 A	5 A	.05	
2	74	6 P	54	6 A	64.0	47	14.6	n	135	15				
3	72	6 P	45	5 A	58.5	61	10.5	nw	115	15				
4	83	5 P	47	5 A	65.0	61	12.4	sw	77	14				
5	87	4 P	60	5 A	73.5	56	7.2	sw	111	25				
6	77	5 P	51	5 A	64.0	43	14.7	se	144	9				
7	67	12 P	54	5 A	60.5	89	0.0	se	167	12	4 A	10 P	.27	
8	71	3 P	64	5 A	67.5	82	0.0	se	155	12	12-30 A	12 P	.03	
9	66	3 P	54	12 P	60.0	88	0.0	n	124	14	0 A	12 P	2.25	
10	63	3 P	53	1 A	58.0	80	0.0	n	217	13	0 A	10 P	.22	
11	75	5 P	56	0 A	65.5	79	3.8	n	145	10	11 P	12 P	.04	
12	78	3 P	60	3 A	69.0	72	4.1	n	110	13	0 A	1 A	.03	
13	81	5 P	56	6 A	68.5	58	14.6	nw	60	15				
14	80	4 P	57	5 A	68.5	69	11.5	s	118	14				
15	81	2 P	59	5 A	70.0	76	6.1	se	143	11	6 P	8 P	.01	
16	76	11 A	58	12 P	67.0	86	0.0	n	110	11	12-30 P	12 P	.21	
17	77	5 P	55	12 P	66.0	75	8.8	n	167	18	1 A	5 A	.72	
18	80	3 P	50	5 A	65.0	60	10.5	nw	55	8				
19	85	3 P	61	5 A	73.0	63	13.1	sw	137	12				
20	94	6 P	67	5 A	80.5	61	9.5	nw	123	18	11 P	12 P	.02	
21	84	3 P	58	12 P	71.0	50	12.5	nw	201	28				
22	78	4 P	48	5 A	63.0	53	14.1	nw	98	9				
23	65	11 A	54	12 P	59.5	74	0.0	nw	66	6	12 M	6 P	.39	
24	75	2 P	54	5 A	64.5	47	14.5	n	132	14				
25	75	5 P	47	5 A	61.0	53	12.4	se	63	9				
26	84	5 P	60	4 A	72.0	65	3.5	se	123	8				
27	85	3 P	65	6 A	75.0	62	12.2	nw	87	13				
28	82	2 P	55	5 A	68.5	51	10.5	nw	163	18				
29	84	7 P	56	5 A	70.0	54	15.3	n	152	20				
30	93	5 P	55	5 A	74.0	62	15.3	s	74	12				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

June, 1931		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.27, 25th	30.31	30.54, 1889
Minimum	29.51, 8th	29.56	29.24, 1902
Mean semi-daily	29.941	29.961	
Range	.76	.75	1.27, 1902; 0.52, 1916
Air Temperature			
Highest	94, 20th	91.1	101, 1919
Lowest	45, 3rd	40.0	34.0, 1891
Mean	66.7	63.7	
Monthly range	49	51.2	
Highest mean daily	80.5, 20th		
Lowest mean daily	58, 10th		
Mean maximum	77.8		
Mean minimum	55.6		
Greatest daily range	38, 30th		
Least daily range	7, 1st, 8th		
Precipitation			
Precipitation. In inches	4.24	3.54	9.68, 1922; 0.76, 1908
Snow, in inches			
Maximum precipitation in 24 hrs.	2.25, 9th		
Number of days on which .01 or more inches of rain fell	12	10	17, 1922; 4, 1908
Wind (miles)			
Total movement	3,704	3,584	4,571, 1908; 1,409, 1906
Greatest daily movement	217, 10th		
Least daily movement	55, 18th		
Mean hourly velocity	5.0	5	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	28, 21st	23	35, 1922
Wind (direction)			
Prevailing direction	nw	wsw	
North, days	10		
Northeast, days	0		
East, days	0		
Southeast, days	6		
South, days	2		
Southwest, days	3		
West, days	0		
Northwest, days	9		
Weather			
Mean relative humidity, per cent	64.9	73.9	85.9, 1922; 65.3, 1891
Mean cloudiness, per cent	57	50.1	71, 1903; 28, 1908
Number of clear days	13	9	22, 1908; 1, 1907, 1926
Number of fair days	7	13	23, 1912; 4, 1895, 1903
Number of cloudy days	10	8	22, 1903; 1, 1923
Number of hours bright sunshine	251.7	257.4	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	55.0	56	
Thunder and lightning	20th		

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1930.

REMARKS

The weather during June was considerably warmer than usual, and there was more than the normal amount of rain. The highest temperature was 94 degrees on the 20th and the lowest, 45 degrees on the 3rd. The mean temperature for the month was 66.7 degrees, while the normal mean temperature for June is 63.7 degrees.

The total rainfall for the month was 4.24 inches of which 2.25 inches fell on the 9th. The normal rainfall for June is 3.54 inches. Rain fell on 12 days. The total precipitation from January 1 to June 30 is 23.80 inches. The normal precipitation for this same period is 20.89 inches.

The heavy rains during May and June have produced a heavy hay crop but quality has been impaired in some cases. Corn and tobacco are somewhat later than normal on account of the heavy rains. The wet weather has favored the development of apple scab and the rotting of strawberries. Apples set only moderately well and strawberries are yielding considerably less than last year. Peaches and plums set well and promise full crops.

There was a total of 251.7 hours of bright sunshine during the month compared to a normal of 257.4 hours. The total wind movement during the month was 3704 miles. The normal is 3584 miles in June. The highest wind velocity was 28 miles per hour on the 21st. The prevailing wind direction for the month was northwest.

C. I. GUNNESS,
Meteorologist

K. M. WHEELER,
Observer

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 511 July, 1931

Meteorological Observations

FOR

JULY

1931

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum.		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	93	3 P	65	5 A	79.0	70	7.1	se	57	10	7 P	8 P	.02	
2	86	3 P	63	5 A	74.5	64	10.3	se	100	11				
3	83	5 P	61	4 A	72.0	67	7.3	s	83	11				
4	84	5 P	59	5 A	71.5	75	6.0	se	61	11	12 M	1 P	.11	
5	83	4 P	57	5 A	70.0	58	12.1	se	120	12				
6	74	6 P	61	3 A	67.5	85	0.0	se	119	14	8 A	7 P	.96	
7	84	1 P	64	4 A	74.0	78	2.4	se	58	10				
8	80	5 P	69	4 A	74.5	86	0.7	nw	69	9	1-30 P	2-30 P	.06	
9	83	3 P	70	5 A	76.5	83	1.5	nw	76	15	5-30 P	10-30 P	.62	
10	83	2 P	70	5 A	76.5	80	3.9	se	137	13	6-30 A	6 P	.40	
11	82	3 P	63	12 P	72.5	69	9.7	se	155	10				
12	78	6 P	57	4 A	67.5	60	9.5	s	112	13				
13	84	3 P	54	5 A	69.0	56	15.0	se	81	9				
14	84	3 P	66	5 A	75.0	75	6.1	s	127	11	5-30 A	6 A	.06	
15	87	3 P	62	4 A	74.5	65	8.3	sw	46	8	7-30 P	9 P	.23	
16	85	4 P	62	12 P	73.5	66	8.3	nw	118	13				
17	81	11 A	60	4 A	70.5	67	5.2	se	95	15	2-30 P	4 P	.03	
18	70	2 P	63	5 A	66.5	78	0.0	se	90	5				
19	83	3 P	65	2 A	74.0	75	2.1	s	69	7				
20	83	2 P	65	5 A	74.0	71	3.1	s	172	14				
21	85	1 P	73	1 A	79.0	80	0.0	s	167	13	1 P	11 P	.34	
22	82	5 P	64	12 P	73.0	73	4.5	nw	140	11	0 A	6-30 A	.24	
23	84	4 P	57	5 A	70.5	76	5.0	s	74	10				
24	82	1 P	65	3 A	73.5	75	3.0	s	56	18	2 P	8 P	.50	
25	79	1 P	56	4 A	67.5	66	6.6	nw	95	14				
26	82	6 P	53	5 A	67.5	61	9.0	w	58	8				
27	89	5 P	58	5 A	73.5	64	4.0	s	90	12				
28	93	3 P	67	3 A	80.0	64	9.5	se	72	8				
29	94	3 P	72	5 A	83.0	68	6.7	se	173	19	5 P	6 P	.30	
30	87	2 P	69	5 A	78.0	60	6.4	se	102	13				
31	78	4 P	60	12 P	69.0	56	6.5	nw	186	22				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

July, 1931		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.13, 13th	30.28	30.50, 1892
Minimum	29.43,19th	29.60	29.39, 1909
Mean semi-daily	29.905	29.972	
Range	0.70	.68	0.97, 1892; 0.51, 1895, 1899
Air Temperature			
Highest	94, 29th	93.9	104, 1911
Lowest	53, 26th	45.5	34.0, 1889
Mean	73.1	70.6	
Monthly range	41	48.4	
Highest mean daily	83.0, 29th		
Lowest mean daily	66.5, 18th		
Mean maximum	78.0		
Mean minimum	63.0		
Greatest daily range	31, 27th		
Least daily range	7, 18th		
Precipitation			
Precipitation. In inches	3.87	4.33	14.51, 1897; 0.70, 1929
Snow, in inches			
Maximum precipitation in 24 hrs.	0.96, 6th		
Number of days on which .01 or more inches of rain fell	13	11	20, 1915; 4, 1924
Wind (miles)			
Total movement	3,158	3,435	5,097, 1909; 1,109, 1894
Greatest daily movement	186, 31st		
Least daily movement	56, 24th		
Mean hourly velocity	4.0	4.6	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	22, 31st	24	39, 1908, 1915
Wind (direction)			
Prevailing direction	s	sw	
North, days	0		
Northeast, days	0		
East, days	0		
Southeast, days	14		
South, days	9		
Southwest, days	1		
West, days	1		
Northwest, days	6		
Weather			
Mean relative humidity, per cent	70	75.6	88.8, 1927; 64.8, 1893
Mean cloudiness, per cent	62	50.1	69, 1914; 31, 1924
Number of clear days	2	9	22, 1923; 0, 1915
Number of fair days	17	14	24, '09, '21; 5, '89, '23, '28
Number of cloudy days	12	8	18,1889; 0, 1910
Number of hours bright sunshine	179.8	266	371, 1910; 182, 1889
Percent of possible hours of bright sunshine	39.0	58	
Thunder and lightning	21st, 24th		

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1930.

REMARKS

The weather during July was somewhat warmer than usual and while there was considerable cloudiness and rain on 13 days, the total rainfall for the month was slightly less than normal. Even with the heavy rains of May and June, the soil is quite dry at the end of the month, and some crops show the need of rain. The rainfall for the month was 3.87 inches. The normal rainfall for July is 4.33 inches. The total rainfall from January 1 to July 31 has been 27.67 inches. The normal precipitation for the same period is 25.22 inches. A heavy rain fell on July 6. A hail storm did considerable damage to tobacco near Amherst on July 24th, although no hail fell at the station. The mean temperature for the month was 73.1 degrees, the normal being 69.9 degrees. The highest temperature was 94 degrees on the 29th. There was only 179.8 hours of bright sunshine, while the normal for July is 266 hours. The total wind movement was 3158 miles, the normal being 3435 miles. No heavy winds were recorded. There was thunder and lightning on the 21st and 24th.

C. I. GUNNESS,
Meteorologist

F. R. SHAW,
Observer

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 512 August, 1931

Meteorological Observations

FOR

AUGUST

1931

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	78	4 P	52	7 A	75.0	54	13.2	nw	101	11				
2	74	1 P	46	5 A	60.0	66	4.1	s	121	10	11 P	12 P	.01	
3	90	3 P	65	0 A	77.5	79	4.1	s	149	28	5 P	8 P	.42	
4	83	3 P	63	5 A	73.0	65	10.1	nw	94	20				
5	89	4 P	59	5 A	74.0	67	14.1	nw	78	10				
6	94	3 P	61	4 A	77.5	65	14.2	sw	62	9				
7	96	1 P	65	5 A	80.0	67	9.4	n	81	17	8 P	10 P	.02	
8	81	2 P	64	7 A	72.5	55	9.1	n	96	7				
9	77	4 P	63	5 A	70.0	82	0.0	se	60	13				
10	80	3 P	65	12 P	72.5	74	3.6	nw	143	14	8 P	9 P	.05	
11	70	1 P	61	6 A	65.5	83	0.0	nw	58	11	4 A	12 P	.51	
12	65	4 P	60	6 A	62.5	88	0.0	nw	168	9	0 A	12 P	.91	
13	83	5 P	60	0 A	71.5	82	2.4	s	69	10	2 A	A 6	.08	
14	85	4 P	65	6 A	75.0	78	6.5	s	88	7				
15	77	3 P	66	12 P	76.5	86	3.7	se	54	4	7 A	2 P	.51	
16	80	4 P	63	5 A	71.5	78	0.3	sw	55	11				
17	85	2 P	59	4 A	72.0	72	9.1	nw	84	32	6 P	9 P	.11	
18	84	2 P	56	6 A	70.0	69	7.7	sw	52	5				
19	74	10 A	59	5 A	66.5	84	0.0	nw	72	15	10 A	1 P	.26	
20	78	1 P	57	5 A	67.5	67	9.0	nw	102	13				
21	75	3 P	56	5 A	65.5	60	8.0	n	120	15				
22	78	2 P	54	6 A	66.0	60	10.2	ne	107	15				
23	75	4 P	54	2 A	64.5	69	6.3	n	132	13				
24	73	1 P	55	6 A	64.0	70	8.4	n	177	18				
25	82	5 P	48	6 A	65.0	73	11.8	s	67	7				
26	82	4 P	56	7 A	69.0	75	10.2	nw	69	5	1 A	2 A	.18	
27	70	4 P	61	6 A	65.5	87	0.3	e	70	22	3 A	12 P	3.34	
28	80	3 P	59	0 A	69.5	82	6.0	se	75	7	0 A	2 A	.17	
29	77	3 P	64	12 P	70.5	79	3.0	s	101	8				
30	76	12 M	56	6 A	66.0	69	10.2	w	113	10				
31	74	3 P	49	12 P	61.5	76	13.0	nw	114	13				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

August, 1931		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.37, 14th	30.32	30.48, 1918
Minimum	29.37, 29th	29.63	29.18, 1890
Mean semi-daily	29.989	29.972	
Range	1.00	.69	1.10, 1890; 0.44, 1894
Air Temperature			
Highest	96, 7th	91.3	100, 1918
Lowest	46, 2nd	42.9	37, 1894, 1908
Mean	69.6	68.4	
Monthly range	50	48.4	
Highest mean daily	80.0, 7th		
Lowest mean daily	60.0, 2nd		
Mean maximum	79.5		
Mean minimum	58.7		
Greatest daily range	34, 25th		
Least daily range	5, 12th		
Precipitation			
Precipitation. In inches	6.57	4.24	8.28, 1915; 0.31, 1894
Snow, in inches			
Maximum precipitation in 24 hrs.	3.51, 27th, 28th		
Number of days on which .01 or more inches of rain fell	13	10	16, 1892; 4, 1899
Wind (miles)			
Total movement	2,932	3,099	4,271, 1910; 1,920, 1894
Greatest daily movement	177, 24th		
Least daily movement	52, 18th		
Mean hourly velocity	4.0	4.2	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	32, 17th	21	35, 1915
Wind (direction)			
Prevailing direction	wnw	sw	
North, days	5		
Northeast, days	1		
East, days	1		
Southeast, days	3		
South, days	6		
Southwest, days	3		
West, days	1		
Northwest, days	11		
Weather			
Mean relative humidity, per cent	72.9	78.4	87.3, 1927; 69.9, 1894
Mean cloudiness, per cent	55	49.4	67, 1901; 27, 1923
Number of clear days	9	9	17, 1921; 0, 1915
Number of fair days	12	13	25, 1912; 5, 1893,
Number of cloudy days	10	9	18, '01, '28; 2, '10, '23,
Number of hours bright sunshine	192.7	236	317, 1921; 152, 1915, 1929
Percent of possible hours of bright sunshine	45	55	
Thunder and lightning	3rd, 19th, 26th 27th, 28th		

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1930.

REMARKS

The weather during August was marked with a large amount of rain, somewhat higher temperature than usual and a small amount of sunshine. The total precipitation during the month was 6.57 inches. Of this amount 3.51 inches fell on the 28th and 29th. Rain fell on 13 days. The total precipitation from January 1 to August 31 is 34.24 inches. The normal precipitation for this period is 29.46 inches. The normal rainfall for August is 4.24 inches.

The mean temperature for the month was 69.6 degrees. The normal is 68.4 for August. The highest temperature was 96 degrees on the 7th and the lowest 46 degrees on the 22nd. The normal maximum is 91.3 degrees and the lowest 42.9 degrees.

There was slightly less than the usual amount of wind with a total wind movement of 2932 miles. The normal is 3099 miles. The highest wind velocity indicated was 32 miles on the 17th. The prevailing direction was west northwest.

The total number of hours of bright sunshine was 192.7 hours. The normal number of hours for August is 236 hours. There was thunder and lightning on the 3rd, 19th, 26th, 27th and 28th.

C. I. GUNNESS,
Meteorologist

F. R. SHAW,
Observer

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 513 September, 1931

Meteorological Observations

FOR

SEPTEMBER

1931

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	71	4 P	43	5 A	57.0	76	13.2	se	94	11				
2	80	11 A	58	12 P	69.0	71	4.2	nw	138	11	6 P	12 P	.24	
3	69	1 P	56	12 P	62.5	83	2.1	n	87	13	0 A	2 A	.15	
4	78	2 P	53	5 A	65.5	78	12.5	nw	58	7				
5	80	2 P	57	6 A	68.5	76	12.0	s	87	9				
6	80	2 P	58	12 P	69.0	75	9.8	s	216	28				
7	74	5 P	52	5 A	63.0	59	11.3	nw	183	25				
8	75	4 P	49	5 A	62.0	58	12.9	nw	160	28				
9	87	3 P	52	3 A	69.5	70	12.8	s	41	9				
10	92	3 P	59	5 A	75.5	76	12.8	sw	77	10				
11	94	4 P	66	5 A	80.0	66	12.8	w	108	8				
12	81	3 P	65	7 A	73.0	54	12.7	s	104	6				
13	84	3 P	60	5 A	72.0	71	6.3	se	125	8				
14	90	1 P	67	4 A	78.5	68	6.5	s	141	12	8-30 P	9-30 P	.03	
15	85	12 M	69	5 A	77.0	66	7.6	e	139	22	7 P	9 P	1.06	
16	78	3 P	60	6 A	69.0	63	11.0	se	119	10				
17	65	8 P	56	7 A	60.5	83	0.0	n	103	10	4-30 A	8-30 A	.11	
18	72	3 P	52	12 P	62.0	69	12.2	n	125	20				
19	66	4 P	43	5 A	54.5	65	12.4	ne	67	15				
20	67	6 P	48	0 A	57.5	83	0.0	se	114	17	5 A	7-30 P	.51	
21	66	0 P	55	6 A	60.5	80	0.1	se	108	8	9 P	10 P	.01	
22	90	3 P	61	0 A	75.5	81	6.0	se	135	25	7 P	8 P	.22	
23	82	2 P	63	5 A	72.5	70	10.5	n	105	17				
24	70	11 A	50	12 P	60.0	63	7.9	w	273	32	8 A	7-30 P	.03	
25	65	2 P	41	6 A	53.0	57	10.3	w	135	17				
26	59	8 P	51	6 A	55.0	85	0.0	nw	65	13	1-30 A	5 P	.14	
27	74	2 P	55	7 A	64.5	72	6.0	n	86	14				
28	57	4 P	42	12 P	49.5	73	0.3	n	232	18				
29	68	2 P	39	6 A	53.5	59	11.9	n	115	18				
30	71	4 P	36	6 A	53.5	70	10.1	n	45	8				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

September, 1931		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.48, 30th	30.45	30.65, 1924
Minimum	29.57, 24th	29.59	29.32, 1900
Mean semi-daily	29.989	30.068	
Range	.91	.86	1.20, 1924; 0.57, 1910
Air Temperature			
Highest	94, 11th	87.4	97.0, 1895, 1929
Lowest	36, 30th	32.8	24.5, 1914
Mean	64.8	61.6	
Monthly range	58	54.6	
Highest mean daily	80.0, 11th		
Lowest mean daily	49.5, 28th		
Mean maximum	75.6		
Mean minimum	53.9		
Greatest daily range	35, 9th, 30th		
Least daily range	8, 26th		
Precipitation			
Precipitation. In inches	2.50	3.79	8.74, 1907; 0.52, 1914
Snow, in inches			
Maximum precipitation in 24 hrs.	1.06, 15th		
Number of days on which .01 or more inches of rain fell	10	9	15, 1918; 3, 1903
Wind (miles)			
Total movement	3,481	3,252	4,686, 1896; 1,414, 1894
Greatest daily movement	273, 24th		
Least daily movement	41, 9th		
Mean hourly velocity	4.7	4.5	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	32, 24th	22	39, 1915
Wind (direction)			
Prevailing direction	nw	wsw	
North, days	8		
Northeast, days	1		
East, days	1		
Southeast, days	6		
South, days	5		
Southwest, days	1		
West, days	3		
Northwest, days	5		
Weather			
Mean relative humidity, per cent	70.6	80.0	89, 1927; 70.7, 1892
Mean cloudiness, per cent	49	48.7	65, 1889; 27, 1908, 1914
Number of clear days	17	9	18, 1891; 2, 1907, 1928
Number of fair days	7	11	19, 1908; 3, 1889
Number of cloudy days	6	10	19, '89, '07; 4, '08, '16
Number of hours bright sunshine	248.2	202.5	255, 1916; 110, 1907
Percent of possible hours of bright sunshine	66	54	
Thunder and lightning	15th, 22nd		
First Frost		19	Aug. 22, '94, '95; Oct. 13, '09

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1930.

REMARKS

The weather during September was unusually warm and pleasant, with a large amount of sunshine. The mean temperature for the month was 64.8 degrees while the normal for September is 61.6 degrees. The highest temperature was 94 degrees on the 11th and the lowest was 36 degrees on the 30th. No frost was observed at the station, although there was frost on low ground in Amherst on the 30th. The normal time for the first frost at the station is September 19. The precipitation for the month was 2.50 inches while the normal for September is 3.79 inches. The total precipitation for the period from January 1 to September 30 is 36.94 inches. The normal precipitation is 53.25 inches. Rain fell on 10 days. On the evening of September 15, 1.06 inches fell between 7 and 9 o'clock.

There were 248.2 hours of bright sunshine, while the normal sunshine for this month is 202.5 hours. The mean relative humidity was 70.6 per cent. The total wind movement was 3,481 miles, the normal being 3,252 miles. The prevailing direction was northwest. The highest velocity observed was 32 miles per hour on the 24th.

The weather for the month has been favorable for pastures and for harvesting of crops. Potatoes, however, are rotting badly due to the excessive rain in August.

C. I. GUNNESS,
Meteorologist

K. M. WHEELER,
Observer

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 514 October, 1931

Meteorological Observations

FOR

OCTOBER

1931

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	71	4 P	49	5 A	60.0	68	3.8	s	154	10				
2	75	3 P	48	5 A	61.5	57	11.7	sw	146	22				
3	82	3 P	48	7 A	65.0	65	11.7	se	56	6				
4	82	3 P	47	7 A	64.5	71	9.3	se	59	8				
5	83	3 P	55	6 A	69.0	78	6.0	s	92	8				
6	77	3 P	53	5 A	65.0	67	9.3	nw	99	18				
7	70	12 M	48	4 A	59.0	77	6.3	s	69	9	1-30 P	5 P	.37	
8	75	2 P	50	12 P	62.5	63	7.7	w	192	22				
9	62	4 P	35	12 P	48.5	66	11.4	nw	156	14				
10	67	3 P	29	7 A	48.0	72	8.9	sw	39	5				
11	67	5 P	30	7 A	48.5	70	3.0	w	82	28	1 P	2 P	.01	
12	55	3 P	39	7 A	47.0	48	11.3	nw	345	28				
13	66	3 P	29	7 A	47.5	56	11.2	s	88	10				
14	62	2 P	32	7 A	47.0	77	1.5	s	76	7	8-30 P	12 P	.21	
15	68	3 P	52	6 A	60.0	88	1.6	nw	50	6	0 A	12 P	.52	
16	62	0 A	50	12 P	56.0	78	0.0	w	77	8	0 A	1-30 P	.69	
17	60	2 P	36	12 P	48.0	62	1.2	w	169	14	5 A	6-30 A	.07	
18	50	3 P	35	5 A	42.5	56	6.0	nw	194	22				
19	64	2 P	30	7 A	47.0	62	10.9	sw	80	22				
20	71	3 P	32	7 A	51.5	60	10.9	s	55	8				
21	65	2 P	38	12 P	51.5	48	10.9	nw	79	22				
22	64	3 P	36	2 A	50.0	55	10.8	nw	155	22				
23	69	4 P	37	7 A	53.0	67	7.6	w	52	7				
24	69	3 P	42	5 A	55.5	73	3.3	s	74	10				
25	68	1 P	47	12 P	57.5	66	3.0	nw	154	28	0 A	2 P	.14	
26	57	3 P	46	6 A	51.5	45	8.4	nw	385	32				
27	63	3 P	41	7 A	52.0	39	10.6	nw	265	20				
28	59	2 P	47	5 A	53.0	79	0.3	w	58	12	3 A	12 P	.10	
29	50	6 A	39	12 P	44.5	89	0.0	nw	101	10	0 A	4 P	.87	
30	65	3 P	35	7 A	50.0	88	4.5	w	66	20	5 P	7 P	.08	
31	56	12 M	37	12 P	46.5	69	3.5	sw	94	13				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

October, 1931		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.43, 13th	30.53	30.68, 1929
Minimum	29.28, 17th	29.42	29.00, 1926
Mean semi-daily	30.015	30.059	
Range	1.15	1.11	1.47, 1926; 0.76, 1899
Air Temperature			
Highest	83, 5th	79.7	90.5, 1908
Lowest	29, 10th, 13th	23.4	18.0, 1904
Mean	53.6	50.4	
Monthly range	54	56.3	
Highest mean daily	69.0, 5th		
Lowest mean daily	42.5, 18th		
Mean maximum	66.3		
Mean minimum	41.0		
Greatest daily range	39, 20th		
Least daily range	11, 26th, 29th		
Precipitation			
Precipitation. In inches	3.06	3.35	8.81, 1911; 0.01, 1924
Snow, in inches			
Maximum precipitation in 24 hrs.	.87, 29th		
Number of days on which .01 or more inches of rain fell	10	8	15, 1913; 1, 1897, 1924
Wind (miles)			
Total movement	3,761	4,023	5,467, 1910; 2,540, 1894
Greatest daily movement	385, 26th		
Least daily movement	39, 10th		
Mean hourly velocity	5.5	5.4	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	32, 26th	27	35, 1906, 1916, 1925
Wind (direction)			
Prevailing direction	w	w	
North, days	0		
Northeast, days	0		
East, days	0		
Southeast, days	2		
South, days	7		
Southwest, days	4		
West, days	7		
Northwest, days	11		
Weather			
Mean relative humidity, per cent	66.4	76.9	86.7, 1920; 64, 1929
Mean cloudiness, per cent	49	47.6	64, 1890, 1900; 18, 1924
Number of clear days	15	8	14, 1897, 1916; 1, 1911
Number of fair days	8	11	17, '24; 5, '94, '96, '98, '03, '17
Number of cloudy days	8	12	19, 1896; 3, 1924
Number of hours bright sunshine	203.1	171.0	232, 1923; 91, 1913
Percent of possible hours of bright sunshine	60	50	
Thunder and lightning	25th		
Frost	10th, 11th, 13th, 14th, 19th, 20th		

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1930.

REMARKS

The weather during October was unusually pleasant with high temperature, many clear days and a large amount of sunshine. The mean temperature for the month was 53.6 degrees while the normal mean temperature for October is 50.4 degrees. The highest temperature was 83 degrees on the 5th. The lowest was 29 degrees on the 10th and 13th. The first frost of the season was on the 10th. Rain fell on 10 days during the month with atotal precipitation of 3.06 inches, which is .29 inch less than normal. The total precipitation from January 1 to October 31 is 39.80 inches, with the normal precipitation for the same period 36.60 inches. The were 203.1 hours of bright sunshine, the normal being 171 hours. There were 15 clear days, 8 fair days and 8 cloudy days. The normal distribution of clear, fair and cloudy days is 8, 11, and 12 days. The total wind movement for the month was 3761 miles with a normal of 4023 miles for October. The prevailing direction was west. The highest wind velocity was 32 miles per hour on the 26th.

C. I. GUNNESS,
Meteorologist

K. M. WHEELER,
Observer

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 515 November, 1931

Meteorological Observations
FOR
NOVEMBER
1931

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	53	2 P	33	7 A	43.0	65	1.0	s	106	18				
2	47	3 P	38	2 A	42.5	61	0.6	w	132	18				
3	54	3 P	30	6 A	42.0	61	0.9	se	115	13	8 P	11 P	.03	
4	56	1 P	42	12 P	49.0	50	7.3	sw	227	25				
5	55	12 M	36	6 A	45.5	58	6.9	sw	156	20			T	
6	40	0 A	29	12 P	34.5	64	0.0	nw	244	25				
7	38	3 P	23	7 A	30.5	60	10.1	nw	199	17				
8	50	3 P	16	6 A	33.0	68	6.3	s	111	14				
9	63	3 P	34	7 A	48.5	67	6.5	se	113	8				
10	72	4 P	31	7 A	51.5	69	6.5	s	57	12				
11	57	3 P	35	12 P	46.0	56	6.0	nw	196	20				
12	57	5 P	32	4 A	44.5	81	0.0	s	93	17	12 M	2 P	.13	
13	60	11 A	44	11 P	52.0	57	5.0	w	267	28	7 A	8 A	.02	
14	55	2 P	35	4 A	45.0	57	6.4	nw	160	20				
15	42	0 A	37	10 P	39.5	87	0.0	nw	55	9	6 A	12 P	.43	
16	45	3 P	38	0 A	41.5	88	0.0	nw	119	9	0 A	6 A	.19	
17	50	12 P	42	0 A	46.0	91	0.0	s	49	11				
18	63	3 P	50	0 A	56.5	89	0.0	se	212	14	1 A	12 M	.05	
19	52	0 A	43	6 A	47.5	81	0.0	nw	147	11				
20	47	8 P	43	2 A	45.0	92	0.0	nw	82	7	0 A	12 P	.13	
21	70	3 P	46	0 A	58.0	83	3.9	s	108	15	0 A	8 A	.03	
22	70	2 P	51	12 P	60.0	84	2.3	s	117	13				
23	65	3 P	47	3 A	56.0	87	3.0	nw	49	9				
24	69	1 P	51	8 A	60.0	76	4.5	se	185	17				
25	58	9 A	36	12 P	47.0	63	0.0	w	303	28				
26	40	2 P	25	12 P	32.5	42	9.4	nw	181	25				
27	30	3 P	23	4 A	26.5	77	0.0	sw	39	5	12 M	6 P	.06	1.0
28	33	12 P	14	8 A	23.5	78	2.5	se	54	5				
29	43	4 P	30	6 A	36.5	73	0.0	s	94	15				
30	45	5 P	36	3 A	40.5	86	0.0	se	91	11	7 A	2-30 P	.48	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

November, 1931		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.69, 20th	30.58	30.86, 1896
Minimum	29.62, 30th	29.34	28.73, 1904
Mean semi-daily	29.811	30.046	
Range	1.07	1.29	1.84, 1904; 0.98, 1890
Air Temperature			
Highest	72, 10th	65.3	75.0, 1924
Lowest	14, 28th	13.8	3.5, 1891
Mean	44.1	38.6	
Monthly range	58	51.4	
Highest mean daily	60, 22nd, 24th		
Lowest mean daily	23.5, 28th		
Mean maximum	52.6		
Mean minimum	35.7		
Greatest daily range	41, 10th		
Least daily range	4, 20th		
Precipitation			
Precipitation. In inches	1.55	3.45	8.64, 1927; 0.63, 1917
Snow, in inches	1.0	2.05	9,24; t,89,93,03,12,18,19,22,27
Maximum precipitation in 24 hrs.	0.62, 15th, 16th		
Number of days on which .01 or more inches of rain fell	10	9	22, 1921; 2, 1904
Wind (miles)			
Total movement	4,061	4,564	5,978, 1906; 2,589, 1889
Greatest daily movement	303, 25th		
Least daily movement	39, 27th		
Mean hourly velocity	5.6	6.3	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	28, 13th, 25th	29	40, 1915
Wind (direction)			
Prevailing direction	sw	w	
North, days	0		
Northeast, days	0		
East, days	0		
Southeast, days	6		
South, days	8		
Southwest, days	3		
West, days	3		
Northwest, days	10		
Weather			
Mean relative humidity, per cent	71.7	76.3	85.9, 1907; 67.8, 1890
Mean cloudiness, per cent	68	53.5	72, 1900, 1927; 34, 1917
Number of clear days	3	6	15, 1903; 1, 1900, 1911, 1927
Number of fair days	10	9	16, 1912; 4, 1889, 1930
Number of cloudy days	17	15	24, 1927; 9, 1890, 1905, 1917
Number of hours bright sunshine	88.8	121.0	182, 1903; 66, 1927
Percent of possible hours of bright sunshine	30	41	
Thunder and lightning			

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1930.

REMARKS

The outstanding feature of the weather for the month was the unusually high temperature during the 10 day period from November 16 to November 25, inclusive. The normal mean temperature for this period is 34 degrees. The mean temperature for this period during the past month was 51.8 degrees. The highest temperature observed during this period was 70 degrees on the 21st and 22nd, which is the highest temperature recorded at the station for that late date. The mean temperature for the month was 44.1 degrees. This is the warmest November since the station was established in 1889. The nearest approach was a temperature of 43.9 degrees in November 1927. The normal mean temperature in November is 38.6 degrees. The highest temperature for the month was 72 degrees on the 10th. The highest temperature ever recorded during November was 75 degrees in 1924, but this occurred on the 1st day of the month. The lowest temperature recorded during the past month was 14 degrees on the 28th. The normal minimum temperature for November is 13.8 degrees while the lowest temperature recorded during the month was 3.5 degrees in 1891. The precipitation for the month was only 1.55 inches, the normal being 3.45 inches. The total precipitation from January 1 to November 30 for the current year is 41.35 inches. The normal for the same period is 40.05 inches. One inch of snow fell on the 27th but melted by the end of the month. Only 3 days were recorded as clear, 10 as fair and 17 as cloudy. The normal is 6, 9 and 15 respectively. There were 88.8 hours of bright sunshine, the normal for the month being 121 hours. The total wind movement during the month was 4061 miles as compared with a normal of 4564 miles. The prevailing direction was southwest.

C. I. GUNNESS,
Meteorologist

K. M. WHEELER,
Observer

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 516 December, 1931

Meteorological Observations

FOR

DECEMBER

1931

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	45	1 P	32	12 P	38.5	49	0.0	w	209	25				
2	35	1 P	24	8 P	29.5	43	6.1	w	293	39				
3	49	2 P	27	5 A	38.0	51	2.3	s	153	14				
4	36	12 P	32	8 A	34.0	79	0.0	nw	104	10	8 A	9 P	1.01	
5	37	1 A	14	12 P	25.5	50	8.2	n	185	25				
6	25	12 P	10	7 A	17.5	73	0.0	s	51	6			T	
7	40	12 M	17	12 P	28.5	59	1.7	w	293	40	1 A	6 P	.05	0.25
8	30	3 P	11	7 A	20.5	33	9.1	nw	265	25				
9	31	12 P	12	3 A	21.5	74	0.0	nw	39	4	10 A	11 P	.44	2.5
10	41	2 P	31	0 A	36.0	73	0.0	w	101	18				
11	39	12 P	33	8 A	36.0	84	0.0	se	101	14	11 A	11 P	.12	
12	56	4 P	35	12 P	45.5	83	3.9	nw	92	15				
13	38	1 A	32	6 A	35.0	81	0.0	nw	68	9	10 A	12 P	.46	
14	40	7 P	34	6 A	37.0	79	0.0	nw	81	28	11 A	3·30 P	.14	
15	35	0 A	18	12 P	26.5	54	8.2	nw	445	32				
16	42	7 P	16	2 A	29.0	55	2.0	s	174	22				
17	47	2 P	31	8 A	39.0	53	4.5	se	220	18				
18	44	0 A	32	7 P	36.0	42	1.3	nw	243	28				
19	50	2 P	34	0 A	42.0	65	6.5	nw	199	18				
20	40	0 A	16	12 P	28.0	76	0.0	nw	127	13	7 A	12 M	.07	.50
21	36	12 P	9	8 A	22.5	80	0.3	nw	115	13				
22	39	6 A	36	0 A	37.5	88	0.0	nw	91	17	7 A	12 P	.50	
23	52	3 P	38	0 A	45.0	76	4.0	s	146	12	0 A	5 A	.54	
24	48	2 P	39	1 A	43.5	82	0.0	s	70	10	7 P	12 P	.50	
25	48	0 A	27	12 P	37.5	75	0.5	nw	170	28				
26	30	2 P	15	12 P	22.5	43	9.0	nw	436	32				
27	34	3 P	12	7 A	23.0	41	9.0	n	159	13				
28	35	3 P	14	8 A	24.5	53	9.0	nw	81	6				
29	42	3 P	14	8 A	28.0	53	9.0	nw	83	15				
30	33	3 P	20	12 P	26.5	60	9.0	nw	209	14				
31	35	3 P	16	8 A	25.5	64	9.1	n	138	15				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

December, 1931		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.63, 8th	30.65	30.96, 1889
Minimum	29.55, 14th	29.25	28.85, 1915
Mean semi-daily	30.058	30.056	
Range	1.08	1.40	1.78, 1895; 1.01, 1892
Air Temperature			
Highest	56,12th	54.5	65.5, 1908
Lowest	9, 21st	-2.3	-22.5, 1917
Mean	31.6	27.3	
Monthly range	47	56.8	
Highest mean daily	45.5, 12th		
Lowest mean daily	23.0, 27th		
Mean maximum	40.0		
Mean minimum	24.6		
Greatest daily range	28, 29th		
Least daily range	4, 4th		
Precipitation			
Precipitation. In inches	3.83	3.47	7.77, 1901; 0.87, 1896
Snow, in inches	3.25	8.99	26.50, '01, '02; t, 1891
Maximum precipitation in 24 hrs.	1.04, 22nd, 23rd		
Number of days on which .01 or more inches of rain fell	10	9	17, 1902; 4, 1892
Wind (miles)			
Total movement	5,141	4,726	6,694, 1925; 3,239, 1918
Greatest daily movement	445, 15th		
Least daily movement	39, 9th		
Mean hourly velocity	7.0	6.4	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	40, 7th	29	41, 1928
Wind (direction)			
Prevailing direction	nw	w w	
North, days	3		
Northeast, days	0		
East, days	0		
Southeast, days	2		
South, days	5		
Southwest, days	0		
West, days	4		
Northwest, days	17		
Weather			
Mean relative humidity, per cent	63.0	77.2	87.1, 1919; 67.2, 1890
Mean cloudiness, per cent	52	53.4	68, 1897; 39, 1919
Number of clear days	10	8	15, 1890; 2, 1922
Number of fair days	4	10	16, 1909; 4, 1889, 1930
Number of cloudy days	17	13	19, 1911, 1922; 7, 1909, 1923
Number of hours bright sunshine	112.7	130.7	172, 1896; 86, 1922
Percent of possible hours of bright sunshine	39	46	
Thunder and lightning	23rd		

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1930.

ANNUAL SUMMARY

Annual, 1931		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.69, Nov. 20	30.81	31.05, 1920
Minimum	28.96, Jan. 6	28.95	28.47, 1914
Mean semi-daily	29.963	30.016	
Range	1.73	1.86	2.33, 1913; 1.55, 1923
Air Temperature			
Highest	96, Aug. 7	95.8	104, 1911
Lowest	-11, Feb. 3	-12.1	-26.0, 1904
Mean	49.4	47.2	49.6, 1913; 44.0, 1904
Range	107	108.0	
Highest mean daily	83, July 29		
Lowest mean daily	7, Feb. 1		
Mean maximum	59.3	57.8	
Mean minimum	39.3	36.5	
Greatest daily range	42, Apr. 20,21; May 6		
Least daily range	4, Feb. 18; May 14; Nov. 20, Dec. 4th		
Precipitation			
Precipitation. In inches	45.18	43.49	57.05, 1897; 30.68, 1908
Snow, in inches	44.00	48.38	78.00, 1920; 24.50, 1919
Maximum precipitation 24 hrs.	3.51, Aug. 27 and 28.		
Number of days on which .01 or more inches of rain fell	134	123	144, 1902; 96, 1924
Wind (miles)			
Total movement	49,882	52,321	63,571, 1908; 36,257, 1894
Greatest daily movement	391, Apr. 27		
Least daily movement	177, Aug. 24		
Mean hourly velocity		6.0	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	40, Dec. 7	35	42, 1912
Wind (direction)			
Prevailing direction	nw	w	
North, days	50		
Northeast, days	5		
East, days	5		
Southeast, days	64		
South, days	55		
Southwest, days	25		
West, days	40		
Northwest, days	121		
Weather			
Mean relative humidity, per cent	67.6	75.8	82.9, 1927; 66.8, 1891
Mean cloudiness, per cent	57	50.8	60, '98, '01, '02; 41, '08, '24
Number of clear days	126	109	145, 1891; 59, 1927
Number of fair days	100	128	182, 1912; 83, 1894
Number of cloudy days	139	128	179, '01, '02; 71, 1910
Number of hours bright sunshine	2152.9	2,356	2,838, 1924; 1864, 1902
Percent of possible hours of bright sunshine	48.3	53	
Last Frosts	May 4th	M'y 12	Apr. 23, 1904 ; June 3, 1908
First Frost	Oct. 10th	S't 19	Aug. 22, '94, '95; Oct. 13, '09
Last snow	April 8th	Apr14	Mar. 14, '10; May 5, '91, '17
First snow	Nov. 27	Nov 5	Oct. 10, '25; Nov. 26, '91

NOTE—The first column in the above summary gives observations made during the year. The second and third columns give the averages and extremes observed from 1889 to 1929.

450-1932-4098

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 517 January, 1932

Meteorological Observations

FOR

JANUARY

1932

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum.		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	33	3 P	18	4 A	25.5	80	0.0	n	98	13	6 P	12 P	.03	
2	37	12 M	29	9 P	33.0	81	0.0	n	210	15	0 A	12 P	.58	4.5
3	36	3 P	30	0 A	33.0	78	0.3	n	212	14	0 A	2 A	.04	0.5
4	32	3 P	12	12 P	22.0	79	1.7	w	66	6				
5	25	4 P	10	1 A	17.5	85	0.3	nw	42	4				
6	50	11 P	24	0 A	37.0	92	0.0	w	87	13	7 A	12 P	.44	
7	51	1 A	30	12 P	40.5	70	2.0	nw	180	20	0 A	5 A	.24	
8	34	3 P	27	5 A	30.5	79	0.0	se	44	4				
9	34	12 M	31	8 A	32.5	87	0.0	nw	38	12	2 A	6 A	.10	1.25
10	35	12 M	26	11 P	30.5	55	3.5	nw	242	22				T
11	29	1 A	14	8 A	21.5	57	7.7	n	115	15				
12	44	12 P	22	0 A	26.5	73	1.8	se	117	10				
13	61	2 P	44	0 A	52.5	87	1.7	se	260	22	9 A	11 A	.12	
14	66	2 P	40	2 A	52.0	64	8.7	s	79	10				
15	58	5 P	38	3 A	48.0	73	0.0	se	136	25	12 M	3-30 P	.07	
16	44	0 A	32	8 A	38.0	50	2.5	nw	205	17				
17	33	0 A	29	8 A	31.0	88	0.0	nw	41	6	7 A	12 P	.11	
18	49	2 P	32	0 A	40.5	63	8.0	w	161	25	0 A	4 A	.08	
19	37	1 A	29	11 P	33.0	54	7.8	w	277	25				
20	43	4 P	30	0 A	36.5	55	0.0	s	167	14				
21	36	0 A	24	7 A	30.0	75	4.3	nw	84	5	2 P	12 P	.25	1.5
22	37	8 P	31	0 A	34.0	86	0.0	nw	56	12	6-30 A	10 A	.09	
23	33	11 A	30	8 A	31.5	85	0.0	nw	71	7	11-30 A	9 P	.51	
24	42	3 P	31	12 P	36.5	55	1.6	w	217	28				
25	36	1 P	30	3 A	33.0	58	0.6	w	155	32			T	
26	45	1 P	27	3 A	36.0	65	3.5	se	167	14	10 P	12 P	.08	
27	44	7 P	35	0 A	39.5	75	0.0	nw	244	28	0 A	12 M	.52	
28	40	2 P	24	12 P	32.0	47	9.8	nw	402	32				
29	31	12 P	18	6 A	24.5	77	0.0	nw	101	8	1 P	7 P	.09	
30	40	3 P	31	0 A	35.5	75	0.6	nw	148	25	1-30 A	10-30 A	.32	
31	30	12 M	18	12 P	24.0	49	7.8	w	448	39				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

January, 1932		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.61, 16th, 17th	30.71	31.00, 1927
Minimum	29.37, 30th	29.18	28.55, 1913
Mean semi-daily	30.120	30.07	
Range	1.24	1.54	2.18, 1913; 0.97, 1896
Air Temperature			
Highest	66, 14th	50.4	61.5, 1890
Lowest	10, 5th	–7.4	–26.0, 1904
Mean	33.5	23.8	
Monthly range	56	58.2	
Highest mean daily	52.5, 13th		
Lowest mean daily	17.5, 5th		
Mean maximum	40.2		
Mean minimum	27.3		
Greatest daily range	26, 6th, 14th		
Least daily range	3, 9th, 23rd		
Precipitation			
Precipitation. In inches	3.67	3.42	7.15, 1898; 1.07, 1896
Snow, in inches	7.75	13	33, 1898,1923; 1.75, 1911
Maximum precipitation 24 hrs.	.68, 6th, 7th		
Number of days on which .01 or more inches of rain fell	17	11	18, 1923; 4, 1889
Wind (miles)			
Total movement	4,870	5,068	7,770, 1908; 2,896, 1895
Greatest daily movement	448, 31st		
Least daily movement	38, 9th		
Mean hourly velocity	6.5	6.8	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	39, 31st	30	40, 1913
Wind (direction)			
Prevailing direction	nw	wnw	
North, days	4		
Northeast, days	0		
East, days	0		
Southeast, days	5		
South, days	2		
Southwest, days	0		
West, days	7		
Northwest, days	13		
Weather			
Mean relative humidity, per cent	70.9	78.2	85.3, 1927; 68.2, 1890
Mean cloudiness, per cent	78	54	66, 1898; 38, 1922
Number of clear days	6	8	16, 1922; 2, 1914
Number of fair days	3	10	18, 1890, 1926; 3, 1916
Number of cloudy days	22	13	22, 1923; 4, 1920
Number of hours bright sunshine	74.2	140	214, 1920; 76, 1923
Percent of possible hours of bright sunshine	25	47.6	

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1931.

REMARKS

The outstanding feature of the weather for the month of January was the unusually high temperature. The mean temperature for the month was 33.5 degrees which has been exceeded only once in the history of the station. This was in 1913 when the mean temperature for January was 34.2 degrees. The normal mean temperature for January is 24.1 degrees. The highest temperature for the month was 66 degrees on the 14th. This is the highest temperature recorded in January since temperature records have been taken in Amherst, beginning in 1836. The lowest temperature during the month was 10 degrees on the 5th. The normal minimum temperature for January is 7.4 degrees below zero. In 1913 the minimum temperature for January was 11 degrees; in 1904 the temperature dropped to 26 degrees below zero. The ground has been free from frost during more than half of the month. Farmers were plowing in the valley during the warm spell in the middle of the month. Dr. Shaw reports that peach buds have swelled considerably due to the high temperature and will be more sensitive than usual to low temperatures in February. The total precipitation for the month was 3.67 inches, the normal being 3.42 inches. The total of 7.75 inches of snow fell during the month. There was no snow on the ground on the first. Snow on the 2nd and 3rd gave a total depth of 5 inches. This had all disappeared by the 7th. A slight snowfall on the 9th melted by the 12th. A fall of 1.50 inches on the 21st was completely melted by the 24th, after which there was no snow. There were only 74.2 hours of bright sunshine which is the least recorded in January since records for sunshine have been obtained. The normal sunshine for January is 140 hours. The total wind movement for the month was 4870 miles, the normal being 5068 miles. The maximum daily wind movement was 448 miles on the 31st. The maximum velocity was 39 miles per hour on the 31st. The prevailing wind direction was northwest.

C. I. GUNNESS,
Meteorologist

K. M. WHEELER,
Observer

450-1932-4098

V

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 518 February, 1932

Meteorological Observations

FOR

FEBRUARY

1932

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	25	2 P	13	8 A	19.0	51	10.0	nw	421	32				
2	25	3 P	16	1 A	20.5	84	0.0	w	66	7	7 A	9-30 P	.24	3.0
3	34	7 P	25	0 A	29.5	92	0.0	se	56	10	8 A	12 M	.07	
4	34	2 P	26	0 A	30.0	77	0.0	ne	89	22	5-30 P	12 P	.75	7.5
5	31	3 P	22	8 A	26.5	69	10.1	nw	272	28	0 A	5 A	.50	4.75
6	41	2 P	18	1 A	29.5	68	4.5	se	119	12				
7	40	4 P	20	7 A	30.0	67	2.8	nw	68	12				
8	42	5 P	23	0 A	32.5	77	0.9	nw	139	32	5 A	1-30 P	.32	1.5
9	31	3 P	10	7 A	20.5	59	6.5	nw	183	22				
10	28	8 P	19	5 A	23.5	83	0.0	nw	60	9	4 A	2 P	.26	2.0
11	35	3 P	28	0 A	31.5	93	0.0	nw	95	10	1 A	10-30 A	.37	
12	41	4 P	29	12 P	35.0	93	0.0	se	54	8	11 A	12 A	.03	
13	46	12 M	20	8 A	33.0	58	10.5	w	172	32				
14	33	0 A	14	12 P	23.5	57	0.3	nw	313	28				
15	28	3 P	3	6 A	15.5	66	7.3	n	130	22				
16	30	5 P	3	7 A	16.5	60	10.6	n	110	13				
17	39	12 P	17	3 A	28.0	84	0.0	se	121	22	8 A	5-30 P	.10	.75
18	39	0 A	15	12 P	27.0	52	8.9	nw	403	39				T
19	33	4 P	6	7 A	19.5	67	3.8	n	114	12				T
20	29	0 A	10	12 P	19.5	51	10.7	nw	250	32				
21	35	3 P	5	7 A	20.0	49	8.6	se	168	13				
22	44	1 P	25	3 A	34.5	60	4.4	w	114	25				
23	32	0 A	12	12 P	22.0	47	9.4	w	299	28				
24	26	2 P	11	3 A	18.5	61	3.9	w	143	22	8 A	10-30 A	.02	.25
25	31	3 P	4	7 A	17.5	61	9.4	s	81	15				
26	39	4 P	28	3 A	33.5	90	0.0	se	109	7	1 A	6 A	.04	.50
27	41	2 P	28	3 A	34.5	91	0.1	n	72	10				
28	38	3 P	34	5 A	36.0	76	0.0	ne	123	10				
29	38	3 P	32	8 A	35.0	76	0.3	n	86	8				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

February, 1932		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.54, 1st	30.63	31.05, 1920
Minimum	29.48, 4th, 5th	29.20	28.56, 1895
Mean semi-daily	30.000	30.03	
Range	1.06	1.43	1.89,1900,1908; .88, 1913,1931
Air Temperature			
Highest	46, 13th	50.3	65.0, 1930
Lowest	3, 15th, 16th	−7.9	−22.5, 1918
Mean	26.3	23.5	
Monthly range	43	58.2	
Highest mean daily	36, 28th		
Lowest mean daily	15.5, 15th		
Mean maximum	34.8		
Mean minimum	17.8		
Greatest daily range	30, 21st		
Least daily range	4, 28th		
Precipitation			
Precipitation. In inches	2.70	3.35	8.12, 1900; 0.62, 1901
Snow, in inches	20.25	14.27	48.75, 1893; 2.5, 1912
Maximum precipitation 24 hrs.	1.25, 4th, 5th		
Number of days on which .01 or more inches of rain fell	11	10	15, 1893, 1920; 4, 1901
Wind (miles)			
Total movement	4,430	4,833	6,445, 1896; 3,438, 1892
Greatest daily movement	421, 1st		
Least daily movement	54, 12th		
Mean hourly velocity	6.4	7.1	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	39, 18th	29	42, 1912
Wind (direction)			
Prevailing direction	nw	wnw	
North, days	5		
Northeast, days	2		
East, days	0		
Southeast, days	6		
South, days	1		
Southwest, days	0		
West, days	5		
Northwest, days	10		
Weather			
Mean relative humidity, per cent	69.6	77.9	90, 1889; 66.8, 1902
Mean cloudiness, per cent	64	50.5	66, 1890, 1927; 31, 1905
Number of clear days	8	10	17, 1924; 2, 1927
Number of fair days	14	8	16, 1920; 3, 1890
Number of cloudy days	7	10	16, 1894; 2, 1920
Number of hours bright sunshine	123.0	160	221, 1924; 110, 1927
Percent of possible hours of bright sunshine	42	54.1	

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1931.

REMARKS

The weather during February has been seasonable in most respects but considerably warmer than usual. The mean temperature for the month was 26.3 degrees. The normal mean temperature for February is 23.5 degrees. The highest temperature during the month was 46 degrees on the 13th. The normal high temperature for February is 50.3 degrees. The lowest temperature observed was 3 degrees on the 15th and 16th. The normal minimum temperature for February is -7.9 degrees. In 1931 the minimum temperature in February was -11 degrees. The lowest temperature observed in February was -22.5 degrees in 1918.

The total precipitation for the month was 2.70 inches which was largely in the form of snow. The normal precipitation for February is 3.35 inches. The total snowfall for the month was 20.25 inches. The normal snowfall for February is 14.27 inches. There was no snow on the ground February 1. A light snow on the 2nd followed by heavy snow on the 4th and 5th brought the total depth to 14 inches. This has decreased gradually until at the end of the month there is about 2 inches of snow on the ground.

There were 123 hours of bright sunshine during the month compared with a normal of 160 hours. The total wind movement during the month was 4430 miles, while the normal for February is 4833. The prevailing direction was northwest. The maximum wind velocity was 39 miles per hour on the 18th.

C. I. GUNNESS,
Meteorologist

K. M. WHEELER,
Observer

450-1932-4098

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 519 March, 1932

Meteorological Observations

FOR

MARCH

1932

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	38	3 A	29	8 A	33.5	66	0.2	nw	416	39			T	T
2	51	3 P	35	0 A	43.0	65	8.3	n	369	39				
3	50	3 P	29	12 P	39.5	49	11.3	n	262	18				
4	45	4 P	25	7 A	35.0	53	6.6	n	180	15				
5	50	3 P	29	7 A	39.5	44	11.3	nw	198	17				
6	39	3 P	25	6 A	32.0	76	0.0	nw	201	20	4 P	9 P	.35	T
7	36	5 P	32	12 P	34.0	77	0.0	nw	260	25	0 A	1-30 P	.40	.25
8	32	0 A	18	12 P	25.0	49	5.7	w	519	48				
9	27	3 P	9	7 A	18.0	49	10.3	w	296	17				
10	30	4 P	12	6 A	21.0	57	1.8	w	262	28				
11	37	3 P	22	3 A	29.5	56	9.6	nw	215	32				
12	35	3 P	23	7 A	29.0	51	11.6	nw	293	25				
13	32	3 P	21	3 A	26.5	54	4.8	w	234	25				
14	32	2 P	13	12 P	22.5	53	5.5	w	258	25				
15	23	4 P	10	7 A	16.5	57	11.8	nw	401	28				
16	33	4 P	10	6 A	21.5	46	11.5	nw	244	22				
17	30	10 A	23	2 A	23.5	91	0.0	nw	115	13	1 A	2 P	.10	1.00
18	38	3 P	23	6 A	30.5	58	5.3	sw	193	22				
19	46	5 P	21	3 A	33.5	78	1.5	s	189	22	9-30 A	8 P	.05	T
20	32	1 P	24	12 P	28.0	41	11.0	nw	323	32				
21	33	3 P	17	6 A	25.0	60	1.4	sw	90	10	6 P	8 P	.02	T
22	37	4 P	24	0 A	30.5	76	0.0	nw	113	35	0 A	12 M	.58	.50
23	40	3 P	27	12 P	33.5	42	12.1	nw	339	39				
24	50	2 P	26	1 A	38.0	61	2.6	sw	102	18	6 P	7 P	.01	
25	42	5 P	26	7 A	34.0	48	5.4	se	122	12				
26	55	1 P	33	5 A	44.0	70	0.6	s	223	18	3 P	5 P	.12	
27	53	4 P	38	12 P	45.5	49	7.4	nw	163	20				
28	38	0 A	26	11 P	32.0	89	0.0	n	236	28	0 A	10 P	1.74	7.00
29	43	5 P	27	0 A	35.0	50	10.9	nw	416	28				
30	53	4 P	27	5 A	40.0	49	9.4	se	159	17				
31	55	8 P	41	0 A	48.0	81	0.1	s	237	28	12-30 P	12 P	.87	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

March, 1932		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.32, 25th	30.60	30.96, 1904
Minimum	28.64, 6th, 7th	29.26	28.47, 1914
Mean semi-daily	29.744	30.02	
Range	1.68	1.35	2.10, 1914; 0.85, 1915
Air Temperature			
Highest	55, 26th, 31st	63.9	79.5, 1907, 1921
Lowest	9, 9th	5.7	–7.5, 1906
Mean	31.9	34.2	
Monthly range	46	58.2	
Highest mean daily	48, 31st		
Lowest mean daily	16.5, 15th		
Mean maximum	39.8		
Mean minimum	24.0		
Greatest daily range	26, 30th		
Least daily range	4, 7th		
Precipitation			
Precipitation. In inches	4.24	3.68	7.13, 1899; 0.12, 1915
Snow, in inches	8.75	8.11	27, 1899; 0, 1921
Maximum precipitation 24 hrs.	1.74, 28th		
Number of days on which .01 or more inches of rain fell	10	11	17, 1890, 1913; 3, 1915
Wind (miles)			
Total movement	7,628	5,738	7,485, 1911; 3,006, 1905
Greatest daily movement	519, 8th		
Least daily movement	90, 21st		
Mean hourly velocity	10.0	7.7	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	48, 8th	29	39, 1913
Wind (direction)			
Prevailing direction	wnw	wnw	
North, days	4		
Northeast, days	0		
East, days	0		
Southeast, days	2		
South, days	3		
Southwest, days	3		
West, days	5		
Northwest, days	14		
Weather			
Mean relative humidity, per cent	59.5	75.0	86.8, 1916; 61.6, 1930
Mean cloudiness, per cent	55.5	51.0	68, 1901; 27, 1915
Number of clear days	12	11	22, 1924; 3, 1901
Number of fair days	7	9	17, 1900; 4, 1895
Number of cloudy days	12	11	21, 1901; 1, 1915
Number of hours bright sunshine	178.0	201	292, 1924; 93, 1901
Percent of possible hours of bright sunshine	48	54.2	

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1931.

REMARKS

The weather during the month of March has been somewhat cooler than normal. The mean temperature for the month was 31.9 degrees while the normal temperature for March is 34.2 degrees. The highest temperature of the month was 55 degrees on the 26th and 31st. The normal maximum temperature for March is 63.9 degrees. The lowest temperature was 9 degrees on the 9th. The normal minimum temperature is 5.7 degrees. Now that the end of winter has been reached it may be interesting to consider the temperatures for the winter months. Temperature records are available for Amherst from 1838 to date. This is the first winter during this period that the temperature has not dropped below zero. In the winter of 1889-1890 there was no zero weather during December, January or February, but the temperature dropped to -6.5 in March. The mean temperature for the past winter from November 1 to March 31 was 33.5 degrees. The normal mean for the same months based on a 40-year average is 29.5 degrees. Dr. J. K. Shaw reports that fruit buds have come through the winter in good condition. The cool weather in March has been favorable in that buds have been held back, decreasing the danger from frost. Apparently no harm was done by the warm winter weather.

The total snowfall for the past winter was 41 inches. The normal snowfall is 48.38 inches. There was a total snowfall of 8.75 inches during the past month. The normal snowfall for March is 8.11 inches. The snow storm on the 28th was unusual for this late date, with a total fall of 7 inches. The total precipitation for the month was 4.24 inches, the normal being 3.68 inches. The total precipitation since January 1 is 10.61 inches. The normal precipitation for the same period is 10.45 inches. The total wind movement for the month was 7628 miles compared with a normal of 5738 miles. On the 8th a maximum wind velocity of 48 miles per hour was recorded. The prevailing wind direction was west northwest. There was a total of 178 hours of bright sunshine during the month. The normal hours of bright sunshine for March are 201 hours.

C. I. GUNNESS,
Meteorologist

K. M. WHEELER,
Observer

450-1932-4098

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 520 April, 1932

Meteorological Observations

FOR

APRIL

1932

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	49	0 A	29	12 P	39.0	52	8.8	w	319	25	0 A	1 A	.10	
2	54	5 P	29	0 A	41.5	69	0.2	se	184	18	9 A	12 M	.03	
3	52	1 P	37	12 P	44.5	66	12.8	w	311	28				
4	45	3 P	29	7 A	37.0	43	12.8	nw	323	28				
5	55	4 P	24	6 A	39.5	45	11.1	s	115	13				
6	63	2 P	29	6 A	46.0	61	11.4	nw	160	18				
7	60	5 P	38	6 A	49.0	71	4.4	nw	179	17	6 A	7 A	.01	
8	53	2 P	44	12 P	48.5	78	0.5	se	113	12				
9	47	3 P	41	7 A	44.0	89	0.0	e	82	9	7 A	8 P	.14	
10	51	2 P	41	6 A	46.0	70	0.0	ne	135	14	1 A	12 P	.06	
11	43	0 A	38	12 P	40.5	82	0.0	ne	152	14	0 A	12 P	.33	
12	48	12 M	36	12 P	42.0	79	0.4	nw	229	29	0 A	10-30A	1.30	
13	41	4 P	32	5 A	36.5	65	3.3	s	242	17				
14	42	4 P	30	12 P	36.0	62	0.1	w	176	15			T	
15	42	5 P	26	5 A	34.0	63	2.5	w	148	20				T
16	48	2 P	29	6 A	38.5	58	11.9	nw	160	25				
17	41	12 M	31	8 A	36.0	62	1.0	nw	472	39				T
18	54	1 P	36	5 A	45.0	59	8.6	nw	273	22				
19	57	6 P	36	5 A	46.5	58	7.5	nw	193	20				
20	69	5 P	32	6 A	50.5	40	13.6	nw	150	20				
21	73	4 P	37	6 A	55.0	45	13.6	nw	145	18				
22	75	4 P	39	6 A	57.0	49	13.7	n	132	20				
23	55	3 P	34	12 P	44.5	39	13.7	nw	257	25				
24	55	5 P	29	6 A	42.0	47	13.7	nw	218	25				
25	58	12 M	29	6 A	43.5	62	6.6	s	96	9	7 P	9 P	.04	
26	62	6 P	42	5 A	52.0	86	0.0	s	102	14	6-30 P	8 P	.30	
27	45	3 P	29	12 P	37.0	58	3.0	nw	314	28				T
28	58	6 P	29	0 A	43.5	45	12.4	w	243	25				
29	72	4 P	47	6 A	59.5	38	14.0	sw	128	9				
30	72	2 P	44	6 A	58.0	63	10.2	s	205	20	9 P	12 P	.02	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

April, 1932		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.40, 5th	30.48	30.71, 1911
Minimum	29.17, 12th	29.41	29.07, 1930
Mean semi-daily	29.917	29.99	
Range	1.23	1.08	1.52, 1930; 0.72, 1919
Air Temperature			
Highest	75, 22nd	79.5	88.5, 1896
Lowest	24, 5th	21.6	8.5, 1923
Mean	44.4	45.8	
Monthly range	51	57.8	
Highest mean daily	59.5, 29th		
Lowest mean daily	34, 15th		
Mean maximum	54.6		
Mean minimum	34.2		
Greatest daily range	37, 20th		
Least daily range	5, 11th		
Precipitation			
Precipitation. In inches	2.33	3.27	6.89, 1929; 0.76, 1892
Snow, in inches	T	2.32	11, 1891; 0, 1910
Maximum precipitation 24 hrs.	1.30, 12th		
Number of days on which .01 or more inches of rain fell	10	11	18, 1909; 3, 1892
Wind (miles)			
Total movement	5,956	5,436	8,208, 1908; 3,853, 1917
Greatest daily movement	472, 17th		
Least daily movement	82, 9th		
Mean hourly velocity	8.3	7.5	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	39, 17th	29	39, 1916, 1931
Wind (direction)			
Prevailing direction	wnw	wnw	
North, days	1		
Northeast, days	2		
East, days	1		
Southeast, days	2		
South, days	5		
Southwest, days	1		
West, days	5		
Northwest, days	13		
Weather			
Mean relative humidity, per cent	60.1	69.6	81.2, 1916; 54.5, 1892
Mean cloudiness, per cent	57.0	49.2	75, 1901; 34, 1925, 1927
Number of clear days	13	11	19, 1911; 3, 1898, 1902
Number of fair days	5	10	18, 1915; 2, 1894, 1901
Number of cloudy days	12	9	22, 1901; 3, 1899, 1924
Number of hours bright sunshine	211.8	221	296, 1911; 103, 1901
Percent of possible hours of bright sunshine	53	55	
Thunder and Lightning	26th		
Frosts after the 15th: 16th, 24th, 25th, 27th, 28th.			

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1931.

REMARKS

The weather during the month of April has been slightly colder than usual. The mean temperature for the month was 44.4 degrees, while the normal for April is 45.8 degrees. The highest temperature was 75 degrees on the 22nd and the lowest 24 on the 5th. The normal maximum temperature for April is 79.5 degrees and the normal minimum is 21.6 degrees. The highest temperature observed in April at this station was 88.5 degrees in 1896 and the lowest 8.5 degrees in 1923. Dr. J. K. Shaw reports that both apple and peach buds have come through without injury and prospects at this stage are for a heavy apple crop. He also reports that vegetation was in a normal state of advance at the end of the month.

The total precipation for the month was 2.33 inches, the normal being 3.27 inches. The total precipitation since January 1 is now 12.94 inches. The normal for this period is 13.72 inches. There were only traces of snow during the month. The normal snowfall for April is 2.32 inches. In 1891 eleven inches of snow fell in April. The total wind movement during the month was 5,956 miles, the normal being 5,436 miles. The highest wind velocity recorded was 39 miles per hour on the 17th. The prevailing direction was west northwest. The relative humidity was 60.1 per cent. There were 211.8 hours of bright sunshine compared with a normal of 221 hours.

C. I. GUNNESS,
Meteorologist

K. M. WHEELER,
Observer

450-1932-4098

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 521 May, 1932

Meteorological Observations

FOR

MAY

1932

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	60	12 M	54	12 P	57.0	91	0.0	se	141	11	0 A	4 P	.91	
2	61	1 P	42	12 P	51.5	58	12.0	nw	223	22				
3	73	4 P	37	5 A	55.0	39	14.1	nw	298	22				
4	71	4 P	44	6 A	57.5	48	9.0	w	117	14				
5	62	2 P	44	11 P	53.0	38	11.0	n	231	22				
6	58	12 M	35	6 A	46.5	43	5.3	s	91	10	3 P	10-30 P	.15	
7	61	12 M	43	6 A	52.0	81	0.0	nw	77	8	1-30 A	4 P	.14	
8	66	5 P	48	6 A	57.0	50	6.0	se	69	11	12-30 A	5 A	.10	
9	68	1 P	41	6 A	54.5	55	9.5	e	139	15				
10	64	3 P	39	5 A	51.5	52	14.4	e	154	13				
11	65	4 P	31	5 A	48.0	52	11.7	ne	124	13				
12	68	3 P	41	5 A	54.5	47	14.3	n	142	14				
13	64	4 P	42	5 A	53.0	52	2.0	n	122	12				
14	78	3 P	40	6 A	59.0	52	9.1	se	86	18			T	
15	82	3 P	46	5 A	64.0	50	13.5	se	122	15				
16	88	1 P	55	5 A	71.5	56	4.5	s	120	13			T	
17	73	3 P	51	12 P	62.0	47	9.5	nw	207	22				
18	66	3 P	43	12 P	54.5	49	7.5	n	151	14				
19	72	5 P	35	6 A	53.5	45	14.7	e	88	12				
20	81	4 P	46	6 A	63.5	48	14.7	s	183	13				
21	78	12 M	46	5 A	62.0	59	8.1	n	106	15				
22	62	4 P	35	12 P	48.5	47	14.8	n	253	25				
23	68	4 P	36	4 A	52.0	47	11.7	nw	194	28				
24	81	4 P	33	5 A	57.0	47	14.9	sw	100	13				
25	89	4 P	54	5 A	71.5	51	11.8	se	179	13				
26	91	2 P	64	6 A	77.5	66	8.1	se	147	14			T	
27	82	4 P	65	7 A	73.5	82	4.0	se	144	20	1-30 A	12 P	.32	
28	75	2 P	52	12 P	63.5	66	5.3	w	182	28	0 A	1-30 A	.03	
29	66	3 P	44	5 A	55.0	49	10.5	nw	175	20				
30	72	5 P	41	6 A	56.5	45	15.0	nw	75	13				
31	74	2 P	47	6 A	60.5	55	3.5	se	126	15	11 P	11-30 P	.02	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

May, 1932		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.43, 19th	30.38	30.55, 1895
Minimum	29.73, 13th	29.51	29.16, 1893
Mean semi-daily	30.022	29.95	
Range	0.70	.88	1.16, 1893; 0.60, 1899
Air Temperature			
Highest	91, 26th	85.5	94.5, 1911
Lowest	31, 11th	30.8	24.0, 1900
Mean	57.9	56.8	
Monthly range	60	54.6	
Highest mean daily	77.5, 26th		
Lowest mean daily	46.5,6th		
Mean maximum	71.6		
Mean minimum	44.3		
Greatest daily range	48, 24th		
Least daily range	6, 1st		
Precipitation			
Precipitation. In inches	1.67	3.63	7.44, 1931; 0.48, 1903
Snow, in inches			
Maximum precipitation 24 hrs.	.91, 1st		
Number of days on which .01 or more inches of rain fell	7	12	20, 1901; 5, 1903
Wind (miles)			
Total movement	4,566	4,540	5,946, 1907; 2,180, 1894
Greatest daily movement	298, 3rd		
Least daily movement	69, 8th		
Mean hourly velocity	6	6.1	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	28,23rd,28th	25	35, 1912
Wind (direction)			
Prevailing direction	ne	w	
North, days	6		
Northeast, days	1		
East, days	3		
Southeast, days	8		
South, days	3		
Southwest, days	1		
West, days	2		
Northwest, days	7		
Weather			
Mean relative humidity, per cent	53.8	70.7	83.9, 1927; 59.3, 1891
Mean cloudiness, per cent	49.0	51.5	70, 1901 ; 30, 1923
Number of clear days	15	10	20, 1923; 0, 1927
Number of fair days	11	11	17, 1907, 1926; 5, 1923
Number of cloudy days	5	10	20, 1927; 3, 1903, 1922
Number of hours bright sunshine	290.5	250.1	334, 1922; 137, 1927
Percent of possible hours of bright sunshine	64	55.2	
Thunder and Lightning	16th, 31st		
Frosts	11th, 19th, 23rd, 24th		
Last Frosts		12th	J'e 3, 1908; Apr 23 , 1904

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1931.

REMARKS

The weather during the month of May was slightly warmer than normal in spite of several frosty mornings. The mean temperature for the month was 57.9 degrees while the normal for May is 56.8 degrees. The highest temperature was 91 degrees on the 26th and the lowest 31 degrees on the 11th. In 1911 the temperature in May reached 94.5 degrees and in 1900 it fell to 24.0 degrees. The rainfall during the month was considerably below normal and the effect is apparent on pastures and grass land. The total precipitation for the month was 1.67 inches. The normal rainfall for May is 3.63 inches. The rainfall from January 1 to May 31 is 14.61. The normal rainfall for this period is 17.35 inches. In 1931 the rainfall in May was 7.44 inches. The least rainfall recorded in May was .48 inches in 1903. There were 290.5 hours of bright sunshine during the month, the normal being 250.1 hours. Fifteen days were recorded as clear, 11 as fair and 5 as cloudy. There were frosts on the 11th, 19th, 23rd, and 24th. The normal date for the last frost is May 12th, although in 1908 the last frost was on June 3. The planting season for farm crops has been favored by the small amount of rain. Dr. J. K. Shaw reports, "Bloom of pears, peaches, and plums was very heavy and the set of fruit seems to be good. Bloom of apples was generally good though rather light on Baldwin. The weather during the bloom period was generally good though there were several rather cold nights. The time of bloom was nearly a week later than average. There was much winter killing of raspberry canes considering the remarkably mild winter. Early strawberry blossoms suffered from frost in some cases".

C. I. GUNNESS,
Meteorologist

K. M. WHEELER,
Observer

450-1932-4098

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 522 June, 1932

Meteorological Observations

FOR

JUNE

1932

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	79	5 P	51	5 A	65.0	55	13.0	nw	133	14				
2	83	4 P	50	5 A	66.5	47	10.5	nw	81	11				
3	77	3 P	57	5 A	67.0	86	2.8	se	130	12	3 A	10-30 P	.55	
4	89	5 P	61	2 A	75.0	63	12.6	nw	114	14				
5	89	1 P	56	5 A	72.5	62	7.5	nw	48	12				
6	84	2 P	60	5 A	72.0	63	12.2	w	113	20	0 A	1 A	.04	
7	64	0 A	40	12 P	52.0	47	13.0	nw	250	25				
8	62	5 P	36	5 A	49.0	44	13.3	sw	168	20				
9	70	4 P	48	6 A	59.0	46	5.3	sw	144	14			T	
10	68	6 P	47	12 P	57.5	48	13.3	nw	215	18				
11	81	5 P	40	4 A	60.5	38	15.2	w	69	10				
12	81	2 P	48	5 A	64.5	52	11.1	s	119	13	8 P	12 P	.04	
13	64	3 P	55	3 A	59.5	87	0.0	ne	98	9	0 A	8 P	.10	
14	68	3 P	58	2 A	63.0	82	0.0	s	49	5	5-30 A	6-30 A	.02	
15	85	5 P	58	4 A	71.5	65	11.2	w	80	10				
16	76	3 P	63	6 A	69.5	86	0.3	nw	51	7	10 A	12 P	1.06	
17	75	5 P	63	4 A	69.0	79	1.3	n	116	12	0 A	9 A	.44	
18	70	2 P	51	12 P	60.5	69	8.8	e	115	11				
19	76	4 P	51	0 A	63.5	81	9.5	s	84	7				
20	86	5 P	57	1 A	71.5	76	9.6	s	79	6				
21	79	2 P	60	6 A	69.5	76	1.5	se	131	11				
22	84	5 P	62	5 A	73.0	64	9.8	w	147	32	9 P	10 P	.05	
23	73	3 P	46	12 P	59.5	56	10.1	w	298	40	6 P	7 P	.02	
24	71	5 P	38	4 A	54.5	47	12.7	w	238	25				
25	66	4 P	47	5 A	56.5	70	0.0	se	105	11				
26	86	4 P	56	3 A	71.0	65	12.8	s	80	13				
27	84	12 M	65	6 A	74.5	81	1.3	s	44	12	12 M	4 P	.30	
28	85	4 P	64	12 P	74.5	56	14 6	w	141	15				
29	84	3 P	54	5 A	69.0	54	13.7	s	61	9				
30	80	2 P	58	12 P	69.0	50	14.1	w	170	20				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

June, 1932		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.29, 18th	30.31	30.54, 1889
Minimum	29.45, 7th	29.56	29.24, 1902
Mean semi-daily	29.885	29.961	
Range	0.84	.75	1.27, 1902; 0.52, 1916
Air Temperature			
Highest	89, 4th, 5th	91.1	101.0, 1919
Lowest	36, 8th	40.0	34.0, 1891
Mean	62.9	65.4	
Monthly range	53	51.2	
Highest mean daily	75, 4th		
Lowest mean daily	49, 8th		
Mean maximum	77.3		
Mean minimum	53.3		
Greatest daily range	41, 11th		
Least daily range	9, 13th		
Precipitation			
Precipitation. In inches	2.62	3.54	9.68, 1922; 0.76, 1908
Snow, in inches	..		
Maximum precipitation 24 hrs.	1.50, 16th, 17th.		
Number of days on which .01 or more inches of rain fell	10	10	17, 1922; 4, 1908
Wind (miles)			
Total movement	3,671	3,584	4,571, 1908; 1,409, 1906
Greatest daily movement	298, 23rd		
Least daily movement	44, 27th		
Mean hourly velocity	5.1	5.0	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	40, 23rd	23	35, 1922
Wind (direction)			
Prevailing direction	wsw	wsw	
North, days	1		
Northeast, days	1		
East, days	1		
Southeast, days	3		
South, days	7		
Southwest, days	2		
West, days	8		
Northwest, days	7		
Weather			
Mean relative humidity, per cent	63.2	73.9	85.9, 1922; 64.9, 1931
Mean cloudiness, per cent	53.0	50.1	71, 1903; 28, 1908
Number of clear days	14	9	22, 1908; 1, 1907, 1926
Number of fair days	8	13	23, 1912; 4, 1895, 1903
Number of cloudy days	8	8	22, 1903; 1, 1923
Number of hours bright sunshine	261.1	257.4	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	57	56.2	
Thunder and Lightning	3rd, 5th, 16th		
Frosts	8th		

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1931.

REMARKS

The weather during June was cooler than usual and less than the normal amount of rain fell in Amherst. The mean temperature for the month was 62.9 degrees. The normal temperature for June is 65.4 degrees. The highest temperature was 89 degrees on the 4th and 5th, while the normal is 91.1 degrees. The lowest temperature was 36 degrees on the 8th with a frost. The temperature dropped to 38 degrees on the 24th. This is the lowest temperature on record for this late date, and while there was no frost at the location of the weather instruments, frost was reported in the town. The total rainfall for the month was 2.62 inches, the normal for the month being 3.54 inches. The total rainfall since January 1 is 17.23 inches and the normal for this period is 20.89 inches The heaviest rain during the month was on the 16th and 17th, when 1.50 inches fell. Very much more rain fell in Holyoke and Springfield at that time. The total wind movement during the month was 3671 miles, which is 87 miles more than normal. A velocity of 40 miles per hour was recorded on the evening of the 23rd. There was more than the normal amount of sunshine, being 261.1 hours as compared with the normal of 257.4 hours.

C. I. GUNNESS,
Meteorologist

F. R. SHAW,
Observer

450-1932-4098

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 523 July, 1932

Meteorological Observations

FOR

JULY

1932

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	77	10 A	54	5 A	65.5	70	6.8	s	79	28	12-30 A	12 P	1.59	
2	76	12 M	64	0 A	70.0	70	6.7	e	160	20	0 A	4 A	.21	
3	74	5 P	54	12 P	64.0	51	7.7	w	243	22	0 A	1 A	.02	
4	65	5 P	54	0 A	59.5	89	0.0	w	75	14	6 A	2 P	.67	
5	77	4 P	49	5 A	63.0	71	14.8	nw	126	18				
6	79	3 P	51	5 A	65.0	67	9.6	nw	80	9				
7	86	2 P	56	5 A	71.0	70	7.0	s	121	7				
8	78	3 P	63	5 A	70.5	78	4.9	se	173	20	3 A	1 P	.62	
9	81	4 P	59	5 A	70.0	66	6.3	se	199	22				
10	88	3 P	61	2 A	74.5	55	11.6	w	119	12				
11	78	1 P	66	9 P	72.0	61	9.0	s	228	28	12 M	1 P	.06	
12	81	5 P	62	5 A	71.5	67	14.1	w	216	22				
13	88	2 P	54	5 A	71.0	59	9.5	nw	77	13				
14	84	4 P	66	5 A	75.0	52	15.0	se	146	17				
15	82	2 P	51	5 A	66.5	58	15.0	nw	98	14				
16	81	4 P	47	6 A	64.0	57	14.8	nw	98	8				
17	84	11 A	65	4 A	74.5	74	1.5	se	172	13			T	
18	78	1 P	62	5 A	70.0	64	10.3	se	144	18				
19	84	2 P	58	5 A	71.0	63	14.0	w	166	22				
20	86	4 P	51	5 A	68.5	52	13.9	nw	147	22				
21	88	4 P	53	5 A	70.5	52	14.9	nw	50	6				
22	72	3 P	55	5 A	63.5	77	0.0	se	81	10	10 A	9 P	.35	
23	84	2 P	66	0 A	75.0	72	8.0	se	95	17				
24	77	4 P	59	3 A	68.0	68	10.8	w	104	14				
25	85	5 P	49	5 A	67.0	65	14.7	sw	104	7				
26	89	3 P	59	5 A	74.0	63	11.9	se	133	9				
27	81	3 P	66	12 P	73.5	88	0.0	se	132	14	4 A	8 P	.17	
28	87	3 P	66	0 A	76.5	73	13.6	w	71	10				
29	82	3 P	59	3 A	70.5	68	9.1	nw	98	14				
30	73	2 P	50	12 P	61.5	60	12.0	nw	136	20				
31	77	12 M	46	5 A	61.5	65	8.1	s	77	12	4 P	4-30 P	.14	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

July, 1932		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.08, 16th	30.28	30.50, 1892
Minimum	29.27, 2nd	29.60	29.39, 1909
Mean semi-daily	29.825	29.972	
Range	0.81	.68	0.97, 1892; 0.51, 1895, 1899
Air Temperature			
Highest	89, 26th	93.9	104.0, 1911
Lowest	46, 31st	45.5	40.0, 1890, 1898
Mean	68.9	70.6	
Monthly range	43	48.4	
Highest mean daily	76.5, 28th		
Lowest mean daily	59.5 4th		
Mean maximum	80.7		
Mean minimum	57.3		
Greatest daily range	36, 25th		
Least daily range	11, 4th		
Precipitation			
Precipitation. In inches	3.83	4.33	14.51, 1897; 0.70, 1929
Snow, in inches	..		
Maximum precipitation 24 hrs.	1.59, 1st		
Number of days on which .01 or more inches of rain fell	9	11	20, 1915; 4, 1924
Wind (miles)			
Total movement	3,948	3,435	5,097, 1909; 1,109, 1894
Greatest daily movement	243, 3rd		
Least daily movement	50, 21st		
Mean hourly velocity	5.3	4.6	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	28, 1st, 11th	24	39, 1908, 1915
Wind (direction)			
Prevailing direction	sw	sw	
North, days	0		
Northeast, days	0		
East, days	1		
Southeast, days	9		
South, days	4		
Southwest, days	1		
West, days	7		
Northwest, days	9		
Weather			
Mean relative humidity, per cent	65.9	75.6	88.8, 1927; 64.8, 1893
Mean cloudiness, per cent	50.0	50.1	69, 1914; 31, 1924
Number of clear days	14	9	22, 1923; 0, 1915
Number of fair days	13	14	24, '09, '21; 5, '89, '23, '28
Number of cloudy days	4	8	18, 1889; 0, 1910
Number of hours bright sunshine	295.6	267	371, 1910; 182, 1889
Percent of possible hours of bright sunshine	64	57.8	
Thunder and Lightning	1st, 27th, 31st		
Frosts			

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1931.

REMARKS

The weather during July has been dry and cool. The rainfall during the month is only one-half inch less than normal but due to a shortage of rain in April, May and June the effect has been noticeable on most crops. The rainfall during the past month was 3.83 inches, while the normal for July is 4.33 inches. The total rainfall since January 1 is 21.06 inches and the normal for this period is 25.22 inches. The rainfall up to April 1 was slightly greater than normal so the deficiency has been accumulated during the growing season.

The mean temperature for the month was 68.9 degrees, while the normal mean temperature for July is 70.6 degrees. Nights have been very cool the mean minimum temperature being 1.9 degrees lower than normal. The highest temperature was 89 degrees on the 26th and the lowest, 46 on the 31st. The normal maximum temperature for July is 93.9 degrees and the normal minimum is 45.5 degrees. There was more than the normal amount of sunshine, being 295.6 hours compared with a normal of 267 hours. There were 14 days recorded as clear, 13 as fair and 4 as cloudy. The total wind movement was 3948 miles and the highest wind velocity was 28 miles per hour on the 1st and 11th. The prevailing wind direction was southwest. The mean relative humidity was low, being 65.9 per cent.

C. I. GUNNESS,
Meteorologist

F. R. SHAW,
Observer

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 524 August, 1932

Meteorological Observations

FOR

AUGUST

1932

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	79	3 P	46	6 A	62.5	63	10.0	sw	50	7				
2	81	2 P	50	5 A	65.5	80	4.5	w	28	7	7 P	10 P	.21	
3	73	10 A	67	3 A	70.0	92	0.0	se	95	13	11 A	11 P	.98	
4	85	5 P	68	5 A	76.5	72	12.6	w	161	20	4 A	5 A	.01	
5	88	4 P	58	5 A	73.0	60	14.3	sw	124	6				
6	86	2 P	60	4 A	73.0	68	10.3	se	80	11				
7	84	4 P	60	5 A	72.0	73	7.3	se	96	13	2 P	3 P	.02	
8	87	2 P	70	4 A	78.5	55	11.0	se	98	11				
9	83	2 P	56	4 A	69.5	61	9.7	w	94	20			T	
10	83	12 M	53	6 A	68.0	74	7.1	w	78	22	3 P	10 P	.12	
11	78	3 P	59	12 P	68.5	76	6.1	s	79	17	1 A	7 A	.07	
12	77	1 P	53	5 A	65.0	70	8.0	w	102	15	2 P	3 P	.02	
13	79	4 P	56	3 A	67.5	59	12.8	nw	121	20				
14	83	4 P	52	5 A	67.5	63	14.0	nw	131	17				
15	88	3 P	49	6 A	68.5	61	14.0	se	85	7				
16	86	2 P	59	4 A	72.5	69	8.9	s	90	12				
17	85	2 P	67	3 A	76.0	64	5.5	se	159	13				
18	84	11 A	68	10 P	76.0	74	2.0	se	172	18	2 P	10 P	.14	
19	81	3 P	61	12 P	71.0	67	9.8	nw	163	10	1-30 A	4 A	.11	
20	81	1 P	51	6 A	66.0	62	13.0	sw	78	10				
21	83	3 P	49	5 A	66.0	57	13.7	se	81	8				
22	88	1 P	50	5 A	69.0	60	13.6	w	50	13				
23	82	3 P	56	5 A	69.0	53	13.3	nw	102	11				
24	81	2 P	47	5 A	64.0	64	13.0	e	116	10				
25	91	2 P	58	5 A	74.5	67	12.3	e	131	10				
26	91	2 P	66	5 A	78.5	59	10.5	e	114	13				
27	82	3 P	68	6 A	75.0	77	1.5	se	146	13	11-30 A	11 P	.38	
28	78	3 P	63	5 A	70.5	63	8.4	w	134	17				
29	80	2 P	59	5 A	69.5	64	7.3	nw	142	20				
30	88	3 P	55	5 A	71.5	70	11.5	n	131	10				
31	76	2 P	65	6 A	70.5	81	0.0	se	70	5	3 A	8 A	.61	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

August, 1932		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.31, 24th	30.32	30.48, 1918
Minimum	29.71, 11th	29.63	29.18, 1890
Mean semi-daily	29.997	30.00	
Range	0.60	.69	1.10, 1890; 0.44, 1894
Air Temperature			
Highest	91, 25th, 26th	91.3	100.0, 1918
Lowest	46, 1st	42.9	37.0, 1894, 1908
Mean	70.5	68.4	
Monthly range	45	48.4	
Highest mean daily	78.5, 8th, 26th		
Lowest mean daily	62.5, 1st		
Mean maximum	82.9		
Mean minimum	58.0		
Greatest daily range	39, 15th		
Least daily range	6, 3rd		
Precipitation			
Precipitation. In inches	2.67	4.24	8.28, 1915; 0.31, 1894
Snow, in inches	..		
Maximum precipitation 24 hrs.	0.98, 3rd		
Number of days on which .01 or more inches of rain fell	11	10	16, 1892; 4, 1899
Wind (miles)			
Total movement	3,301	3,099	4,271, 1910; 1,920, 1894
Greatest daily movement	172, 18th		
Least daily movement	28, 2nd		
Mean hourly velocity	4.4	4.2	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	22, 10th	21	35, 1915
Wind (direction)			
Prevailing direction	ssw	sw	
North, days	1		
Northeast, days	0		
East, days	3		
Southeast, days	10		
South, days	2		
Southwest, days	3		
West, days	7		
Northwest, days	5		
Weather			
Mean relative humidity, per cent	67.0	78.4	87.3, 1927; 69.9, 1894
Mean cloudiness, per cent	38.5	49.4	67, 1901; 27, 1923
Number of clear days	15	9	17, 1921; 0, 1915
Number of fair days	12	13	25, 1912; 5, 1893
Number of cloudy days	4	9	18, '01, '28; 2, '10, '23
Number of hours bright sunshine	286.0	237	317, 1921; 152, 1915, 1929
Percent of possible hours of bright sunshine	67	55.2	
Thunder and Lightning	7th, 27th		
Frosts			

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1931.

REMARKS

The weather during the month of August was dry, clear, and warm. The precipitation during the month was only 2.67 inches, while the normal for the month is 4.24 inches. The total precipitation for the present calendar year since January 1 is 23.73 inches. The normal precipitation for this period is 29.46 inches. The mean temperature for the month was 70.5 degrees, while the normal mean temperature is 68.4 degrees. The highest temperature was 91 degrees on the 25th and 26th. The normal maximum temperature for August is 91.3 degrees. The lowest temperature was 46 degrees on the 1st, the normal minimum temperature for August being 42.9 degrees. There were 286 hours of bright sunshine during the month compared with a normal of 236 hours. There were 15 days recorded as clear, 12 as fair and 4 as cloudy. The normal distribution of clear, fair, and cloudy days in August is 9, 13, and 9 respectively. The total wind movement for the month was 3301 miles compared with a normal of 3099 miles. The maximum velocity was 22 miles per hour on the 10th. The prevailing direction was south southwest. The mean relative humidity was 67 per cent. There was thunder and lightning on the 7th and 27th. No sunshine was recorded on the 31st, the day of the eclipse, but the clouds broke away for a short period during the phenomenon.

C. I. GUNNESS,
Meteorologist

F. R. SHAW,
Observer

450-1932-4098

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 525 September, 1932

Meteorological Observations

FOR

SEPTEMBER

1932

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	84	2 P	68	4 A	76.0	83	0.3	se	69	7				
2	92	1 P	64	12 P	78.0	67	7.9	nw	115	14				
3	87	2 P	56	5 A	71.5	59	11.4	ne	115	11				
4	80	3 P	62	6 A	71.0	88	0.0	e	108	11	4-30 P	5-30 P	.20	
5	82	3 P	70	12 P	76.0	90	1.2	e	70	20	5 P	6 P	.64	
6	82	1 P	54	12 P	68.0	65	6.5	w	139	25				
7	70	3 P	46	5 A	58.0	58	7.4	nw	87	18				
8	69	3 P	49	5 A	59.0	60	0.8	nw	258	25				
9	74	12 M	52	12 P	63.0	61	12.8	nw	402	25				
10	73	3 P	42	6 A	57.5	54	12.8	n	158	13				
11	76	3 P	35	6 A	55.5	56	12.7	w	57	8				
12	85	3 P	44	6 A	64.5	68	12.7	sw	38	7				
13	83	2 P	57	6 A	70.0	58	12.6	e	86	13				
14	83	3 P	60	4 A	71.5	67	8.5	se	135	13				
15	80	1 P	59	5 A	69.5	68	10.5	se	122	10				
16	66	9 A	58	3 A	62.0	88	0.0	nw	188	32	9 A	11 P	1.94	
17	67	4 P	59	6 A	63.0	57	12.4	w	278	28				
18	65	4 P	42	6 A	53.5	59	12.4	w	147	17				
19	65	3 P	35	5 A	50.0	62	10.2	se	60	8				
20	78	5 P	46	6 A	62.0	72	9.2	w	50	3				
21	86	4 P	52	7 A	69.0	77	9.2	sw	46	14				
22	76	4 P	58	12 P	67.0	77	9.6	nw	95	15				
23	83	3 P	55	7 A	69.0	72	10.7	w	95	15				
24	70	2 P	50	7 A	60.0	61	12.1	nw	123	18	11 P	12 P	.05	
25	65	3 P	40	12 P	52.5	59	12.0	nw	126	14	0 A	2-30 A	.03	
26	71	3 P	34	6 A	52.5	59	11.0	s	79	8				
27	62	12 P	43	3 A	52.5	86	0.0	se	133	12	6-30 A	11-30 A	.10	
28	68	9 A	49	11 P	58.5	79	4.8	s	206	25	0 A	1 P	1.00	
29	63	2 P	40	12 P	51.5	66	11.9	nw	170	22				
30	54	3 P	32	6 A	43.0	58	9.5	n	121	10				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

September, 1932		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.49, 26th	30.45	30.65, 1924
Minimum	29.40, 16th	29.59	29.32, 1900
Mean semi-daily	30.064	30.068	
Range	1.09	.86	1.20, 1924; 0.57, 1910
Air Temperature			
Highest	92, 2nd	87.4	97.0, 1895, 1929
Lowest	32, 30th	32.8	24.5, 1914
Mean	62.5	61.6	
Monthly range	60	54.6	
Highest mean daily	78, 2nd		
Lowest mean daily	43, 30th		
Mean maximum	74.6		
Mean minimum	50.4		
Greatest daily range	41, 11th, 12th		
Least daily range	8, 16th, 17th		
Precipitation			
Precipitation. In inches	3.96	3.79	8.74, 1907; 0.52, 1914
Snow, in inches	..		
Maximum precipitation 24 hrs.	1.94, 16th		
Number of days on which .01 or more inches of rain fell	7	9	15, 1918; 3, 1903
Wind (miles)			
Total movement	3,876	3,252	4,686, 1896; 1,414, 1894
Greatest daily movement	402, 9th		
Least daily movement	38, 12th		
Mean hourly velocity	5.4	4.5	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	32, 16th	22	39, 1915
Wind (direction)			
Prevailing direction	w	wsw	
North, days	2		
Northeast, days	1		
East, days	3		
Southeast, days	5		
South, days	2		
Southwest, days	2		
West, days	6		
Northwest, days	9		
Weather			
Mean relative humidity, per cent	68.0	80.0	89, 1927; 70.6, 1931
Mean cloudiness, per cent	47.0	48.7	65, 1889; 27, 1908, 1914
Number of clear days	19	9	18, 1891; 2, 1907, 1928
Number of fair days	5	11	19, 1908; 3, 1889
Number of cloudy days	6	10	19, '89, '07; 4, '08, '16
Number of hours bright sunshine	253.1	202.5	255, 1916; 110, 1907
Percent of possible hours of bright sunshine	68	54.4	
Thunder and Lightning			
Frosts	11th, 19th, 30th	19	Aug. 22, '94, '95; Oct. 13, '09

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1931.

REMARKS

The weather during September was pleasant and seasonable with considerable more sunshine than usual, few rains, and somewhat warmer than normal. The mean temperature for the month was 62.5 degrees, the normal being 61.6 degrees. The highest temperature was 92 degrees on the 2nd, the normal maximum for September being 87.4 degrees. The lowest temperature was 32 degrees on the 30th. There were frosts on the 11th, 19th and 30th. The normal date for the first frost is September 19th.

The total rainfall for the month was 3.96 inches compared with a normal of 3.79 inches. This rain fell in seven rains and 1.94 inches fell between 9 A. M. and 11 P. M. on the 16th. The total precipation for the current year from January 1 to September 30th is 27.69 inches. The normal precipitation for the same period is 33.25 inches. There were 19 days recorded as clear during the month and there was a total of 253.1 hours of bright sunshine compared with a normal of 202.5 hours. The relative humidity for the month was 68 per cent. There was slightly more wind than normal, the total movement being 3,876 miles and the normal being 3,252 miles. The maximum velocity was 32 miles per hour on the 16th.

C. I. GUNNESS,
Meteorologist

HERBERT JENKINS,
Observer

450-1932-4098

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 526 October, 1932

Meteorological Observations

FOR

OCTOBER

1932

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum.		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	51	4 P	41	2 A	46.0	83	2.8	nw	53	5	0 A	8 A	.05	
2	76	3 P	46	5 A	61.0	67	8.3	se	124	14				
3	76	2 P	60	4 A	68.0	76	7.2	se	162	14				
4	79	2 P	60	5 A	69.5	79	6.5	se	136	13	3 P	3-30 P	.05	
5	74	12 M	68	2 A	71.0	78	1.1	e	266	22	1 P	12 P	.26	
6	75	12 M	52	12 P	63.5	80	2.1	e	312	25	8 A	8 P	1.10	
7	56	3 P	44	12 P	50.0	58	8.8	w	220	22				
8	74	4 P	39	6 A	56.5	70	10.3	se	82	8				
9	76	3 P	41	6 A	58.5	70	8.0	se	62	7				
10	76	3 P	45	7 A	60.5	68	8.2	s	78	9				
11	63	12 M	40	12 P	51.5	68	3.3	se	178	25	11-30 A	12 M	.04	
12	52	2 P	37	3 A	44.5	61	5.0	sw	154	25				
13	49	4 P	26	12 P	37.5	50	11.2	nw	215	25				
14	55	2 P	21	6 A	38.0	61	10.3	se	109	20				
15	63	3 P	28	7 A	45.5	58	10.6	se	66	7				
16	60	8 P	54	3 A	57.0	80	0.0	se	85	10	11-30 A	2 P	.03	
17	65	3 A	54	5 A	59.5	83	1.1	sw	72	8	3-30 P	12 P	.26	
18	62	1 P	59	12 P	60.5	82	0.0	n	163	32	0 A	8 P	1.48	
19	60	9 A	52	12 P	56.0	77	0.2	nw	271	22			T	
20	57	1 P	50	7 A	53.5	83	0.0	nw	165	25	8 A	9 A	.04	
21	56	4 P	45	8 A	50.5	58	2.1	w	234	28				
22	62	2 P	40	12 P	51.0	55	10.8	w	205	22				
23	57	4 P	34	4 A	45.5	70	5.7	nw	96	14				
24	56	4 P	30	12 P	43.0	62	10.7	nw	92	7				
25	57	2 P	30	3 A	43.5	67	3.7	se	48	10				
26	64	12 P	47	1 A	55.5	84	0.0	s	86	25				
27	58	2 A	45	12 P	51.5	88	0.4	nw	162	10	2 A	4 P	.35	
28	53	1 P	37	7 A	45.0	73	6.7	nw	198	25				
29	58	1 P	37	7 A	47.5	54	7.8	s	139	15	9 P	9-30 P	.03	
30	52	2 P	35	12 P	43.5	57	3.5	w	171	20				
31	52	4 P	31	7 A	41.5	63	10.4	w	83	11				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

October, 1932		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.53, 25th	30.53	30.68, 1929
Minimum	29.53, 21st	29.42	29.00, 1926
Mean semi-daily	30.033	30.059	
Range	1.00	1.11	1.47, 1926; 0.76, 1899
Air Temperature			
Highest	79, 4th	79.7	90.5, 1908
Lowest	21, 14th	23.4	18.0, 1904
Mean	52.4	50.4	
Monthly range	58	56.3	
Highest mean daily	71, 5th		
Lowest mean daily	37.5, 13th		
Mean maximum	62.1		
Mean minimum	42.8		
Greatest daily range	35,8th, 9th, 15th		
Least daily range	3, 18th		
Precipitation			
Precipitation. In inches	3.69	3.35	8.81, 1911; 0.01, 1924
Snow, in inches	..		
Maximum precipitation 24 hrs.	1.60, 17th, 18th		
Number of days on which .01 or more inches of rain fell	11	8	15, 1913; 1, 1897, 1924
Wind (miles)			
Total movement	4,487	4,023	5,467, 1910; 2,540, 1894
Greatest daily movement	312, 6th		
Least daily movement	48, 25th		
Mean hourly velocity	6.0	5.4	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	32, 18th	27	35, 1906, 1916, 1925
Wind (direction)			
Prevailing direction	sw	w	
North, days	1		
Northeast, days	0		
East, days	2		
Southeast, days	10		
South, days	3		
Southwest, days	2		
West, days	5		
Northwest, days	8		
Weather			
Mean relative humidity, per cent	70.0	76.9	86.7, 1920; 64, 1929
Mean cloudiness, per cent	67.1	47.6	64, 1890, 1900; 18, 1924
Number of clear days	12	8	15, 1931; 1, 1911
Number of fair days	7	11	17, '24; 5, '94, '96, '98, '03, '17
Number of cloudy days	12	12	19, 1896; 3, 1924
Number of hours bright sunshine	166.8	171.0	232, 1923; 91, 1913
Percent of possible hours of bright sunshine	48.9	50.1	
Thunder and Lightning			
Frosts	13th, 14th, 15th, 24th, 25th, 28th, 31st		

Note—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1931.

REMARKS

The weather during October has been slightly warmer than usual with somewhat more rain than normal. The mean temperature for the month was 52.4 degrees which is 2.0 degrees higher than normal. The highest temperature was 79 degrees on the 4th and the lowest temperature was 21 degrees on the 14th. The total rainfall during the month was 3.69 inches, the normal being 3.35 inches. The total rainfall for the year since January 1 is now 31.38 inches, while the normal for this period is 36.60 inches. Rain fell on 11 days, while the normal number of days of rain for October is 8 days. There were 166.8 hours of bright sunshine during the month, the normal for October being 171.0 hours. The total wind movement during the month was 4487 miles, while the normal for the month is 4023 miles. The prevailing direction was southwest.

C. I. GUNNESS,
Meteorologist

HERBERT JENKINS,
Observer

460-1932-4098

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 527 November, 1932

Meteorological Observations
FOR
NOVEMBER
1932

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	57	2 P	37	12 P	47.0	76	0.0	e	286	32	8 A	3 P	.74	
2	47	1 P	35	7 A	41.0	53	2.2	w	141	14				
3	43	2 P	22	12 P	32.5	50	10.2	nw	161	17				
4	50	4 P	20	6 A	35.0	64	9.3	se	94	11				
5	62	11 A	35	12 P	48.5	66	1.7	sw	195	17				
6	59	2 P	28	7 A	43.5	59	8.3	w	62	9	10 P	12 P	.14	
7	49	4 P	42	7 A	45.5	89	0.0	nw	141	11	0 A	8 A	.37	
8	50	10 A	38	12 P	44.0	81	0.0	n	219	17			T	
9	42	10 P	35	6 A	38.5	71	0.0	ne	241	20	11-30 P	12 P	.05	
10	46	3 P	35	12 P	40.5	87	0.0	nw	251	20	0 A	11 A	1.63	
11	55	4 P	31	4 A	43.0	84	4.0	s	65	9				
12	48	0 A	32	12 P	40.0	57	4.3	w	209	20	3 A	4-30 A	.05	
13	42	1 P	24	12 P	33.0	61	3.1	w	151	22				
14	45	4 P	22	4 A	33.5	61	3.3	se	144	12				
15	58	2 P	32	7 A	45.0	76	8.4	se	161	14				
16	45	12 P	32	4 A	38.5	90	0.0	w	54	3			T	
17	50	1 P	30	12 P	40.0	66	8.1	nw	199	22	0 A	5 A	.18	
18	45	3 P	25	7 A	35.0	58	8.6	nw	217	15				
19	48	5 P	34	5 A	41.0	85	0.0	n	104	18	2 A	5-30 P	2.86	
20	40	0 A	23	12 P	31.5	53	8.8	nw	269	17				
21	41	4 P	24	7 A	32.5	62	0.0	se	89	22				
22	34	0 A	25	7 A	29.5	45	9.5	nw	301	22				
23	36	3 P	14	7 A	25.0	61	8.5	nw	131	11				
24	47	1 P	30	12 P	38.5	60	2.3	s	168	18	6 A	6-30 A	.03	
25	55	3 P	28	8 A	41.5	65	9.5	se	160	14				
26	43	11 A	9	12 P	26.0	50	2.8	nw	287	32				T
27	26	3 P	8	8 A	17.0	47	9.4	nw	252	15				
28	33	3 P	10	7 A	21.5	46	9.4	nw	180	15				
29	40	3 P	11	7 A	25.5	43	7.8	nw	160	18				
30	53	3 P	32	4 A	42.5	34	8.0	nw	271	17				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1923 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

November, 1932		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.87, 28th	30.58	30.86, 1896
Minimum	29.37, 19th	29.34	28.73, 1904
Mean semi-daily	30.212	30.046	
Range	1.50	1.29	1.84, 1904; 0.98, 1890
Air Temperature			
Highest	62, 5th	65.3	75.0, 1924
Lowest	8, 27th	13.8	3.5, 1891
Mean	36.5	38.6	
Monthly range	54	51.4	
Highest mean daily	48.5, 5th		
Lowest mean daily	17, 27th		
Mean maximum	46.3		
Mean minimum	26.7		
Greatest daily range	34, 26th		
Least daily range	7, 7th, 9th		
Precipitation			
Precipitation. In inches	6.05	3.45	8.64, 1927; 0.63, 1917
Snow, in inches	T	2.05	9,24; t,89,93,03,12,18,19,22,27
Maximum precipitation 24 hrs.	2.86, 19th		
Number of days on which .01 or more inches of rain fell	9	9	22, 1921; 2, 1904
Wind (miles)			
Total movement	5,363	4,564	5,978, 1906; 2,589, 1889
Greatest daily movement	287, 26th		
Least daily movement	54, 16th		
Mean hourly velocity	7.4	6.3	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	32, 1st, 26th	29	40, 1915
Wind (direction)			
Prevailing direction	nw	w	
North, days	2		
Northeast, days	1		
East, days	1		
Southeast, days	5		
South, days	2		
Southwest, days	1		
West, days	5		
Northwest, days	13		
Weather			
Mean relative humidity, per cent	63.3	76.3	85.9, 1907; 67.8, 1890
Mean cloudiness, per cent	59	53.5	72, 1900, 1927; 34, 1917
Number of clear days	14	6	15, 1903; 1, 1900, 1911, 1927
Number of fair days	4	9	16, 1912; 4, 1889, 1930
Number of cloudy days	12	15	24, 1927; 9, 1890, 1905, 1917
Number of hours bright sunshine	147.5	121.0	182, 1903; 66, 1927
Percent of possible hours of bright sunshine	50	41.3	
Thunder and Lightning			
Frosts			

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1931.

REMARKS

The weather during November was cooler than usual. There was more rain than normal, more sunshine, and more wind than for the average November. The mean temperature for the month was 36.5 degrees, the normal being 38.6 degrees. The highest temperature was 62 degrees on the 5th. The lowest was 8 degrees on the 27th. The normal maximum temperature for November is 65.3 degrees and the normal minimum is 13.8 degrees. The total precipitation for the month was 6.05 inches but rain fell on only 9 days, so it did not give the impression of a rainy month. A total of 2.86 inches fell on the 19th. The normal rainfall for November is 3.45 inches. The total precipitation since January 1 is now 37.43 inches. The normal precipitation for this period is 40.05 inches. There was a trace of snow on the 26th but not enough to be noticeable on the ground. There was a total of 147.5 hours of bright sunshine compared with a normal of 121 hours. The total wind movement was 5363 miles, the normal being 4564. The maximum wind velocity was 32 miles per hour on the 1st and 26th. The prevailing direction was northwest. The barometer was higher than normal, the mean being 30.212 inches. The highest barometer reading was 30.87 inches. The highest recorded heretofore in November was 30.86 in 1896.

C. I. GUNNESS,
Meteorologist

HERBERT JENKINS,
Observer

450-1932-4098

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 528 December, 1932

Meteorological Observations

FOR

DECEMBER

1932

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	58	3 P	35	7 A	46.5	57	9.3	nw	229	13				
2	48	6 P	24	7 A	36.0	61	3.3	se	55	10				
3	61	2 P	33	12 P	47.0	62	6.6	n	148	20				
4	45	12 P	29	7 A	37.0	82	0.2	s	38	8				
5	52	3 P	37	12 P	44.5	52	6.4	s	178	17	8 P	10 P	.03	
6	50	6 P	32	8 A	41.0	65	2.7	se	109	10				
7	64	2 P	45	6 A	54.5	60	5.7	se	270	25	8 P	10 P	.13	
8	50	0 A	20	12 P	35.0	46	7.3	nw	354	28				
9	33	3 P	19	3 A	26.0	52	4.8	se	109	9				
10	26	3 P	17	12 P	21.5	64	0.0	nw	140	15	5 P	12 P	.07	1.50
11	20	3 P	12	8 A	16.0	76	0.0	nw	185	10	0 A	12 P	.06	.75
12	29	8 P	17	3 A	23.0	90	0.0	nw	136	11	0 A	11 P	.54	2.25
13	32	3 P	20	7 A	26.0	69	0.0	se	105	9	6-30 P	10-30 P	.04	1.00
14	31	1 P	12	6 A	21.5	63	2.8	se	86	10				
15	25	12 M	10	6 A	17.5	56	5.8	w	169	22				
16	11	2 P	5	8 A	8.0	42	9.0	w	231	22				
17	12	12 P	-11	8 A	0.5	71	0.0	nw	86	10	3-30 P	12 P	.03	.50
18	28	2 P	3	12 P	15.5	67	9.0	nw	96	8	0 A	5 A	.08	1.00
19	24	12 M	1	8 A	12.5	75	1.5	nw	49	7				
20	39	2 P	8	0 A	23.5	71	7.1	w	44	4				
21	39	2 P	7	4 A	23.0	73	5.1	se	122	17				
22	45	3 P	28	11 P	36.5	64	7.0	nw	194	28				
23	41	7 P	24	7 A	32.5	67	0.3	se	163	13	2 P	11 P	.12	
24	49	3 P	36	8 A	42.5	67	7.1	e	200	20				
25	50	6 P	34	6 A	42.0	92	0.0	e	121	9	0 A	5 A	.14	
26	49	0 A	28	12 P	38.5	64	2.8	w	237	25				
27	32	12 P	23	8 A	27.5	81	0.0	sw	34	7	3 P	12 P	.39	1.50
28	36	2 P	31	0 A	33.5	90	0.0	w	35	3	0 A	4 P	.34	
29	34	2 P	24	9 P	29.0	89	0.4	s	20	4				
30	44	3 P	26	0 A	35.0	90	0.0	se	87	11				
31	61	2 P	24	12 P	42.5	68	0.3	nw	316	32	6 A	8 A	.02	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

December, 1932		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.68, 17th	30.65	30.96, 1889
Minimum	29.34, 31st	29.25	28.85, 1915
Mean semi-daily	30.189	30.056	
Range	1.34	1.40	1.78, 1895; 1.01, 1892
Air Temperature			
Highest	64, 7th	54.5	65.5, 1908
Lowest	-11, 17th	–2.3	–22.5, 1917
Mean	30.2	27.3	
Monthly range	75	56.8	
Highest mean daily	54.5, 7th		
Lowest mean daily	0.5, 17th		
Mean maximum	39.3		
Mean minimum	21.1		
Greatest daily range	37, 31st		
Least daily range	5, 28th		
Precipitation			
Precipitation. In inches	1.99	3.47	7.77, 1901; 0.87, 1896
Snow, in inches	8.50	8.99	26.50, '01, '02; t, 1891
Maximum precipitation 24 hrs.	.73, 27th, 28th		
Number of days on which .01 or more inches of rain fell	13	9	17, 1902; 4, 1892
Wind (miles)			
Total movement	4,346	4,726	6,694, 1925; 3,239, 1918
Greatest daily movement	354, 8th		
Least daily movement	20, 29th		
Mean hourly velocity	6.0	6.4	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	32, 31st	29	41, 1928
Wind (direction)			
Prevailing direction	wsw	w	
North, days	1		
Northeast, days	0		
East, days	2		
Southeast, days	9		
South, days	3		
Southwest, days	1		
West, days	5		
Northwest, days	10		
Weather			
Mean relative humidity, per cent	68.6	77.2	87.1, 1919; 63, 1931
Mean cloudiness, per cent	69.5	53.4	68, 1897; 39, 1919
Number of clear days	8	8	15, 1890; 2, 1922
Number of fair days	8	10	16, 1909; 4, 1889, 1930, 1931
Number of cloudy days	15	13	19, 1911, 1922; 7, 1909, 1923
Number of hours bright sunshine	104.5	130.7	172, 1896; 86, 1922
Percent of possible hours of bright sunshine	37	46.0	
Thunder and Lightning			

NOTE—The first column in the above summary gives observations made during the month. The second column gives averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1931.

ANNUAL SUMMARY

Annual, 1932		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.87, Nov. 28	30.81	31.05, 1920
Minimum	28.64, Mar. 6, 7	28.95	28.47, 1914
Mean semi-daily	30.001	30.016	
Range	2.23	1.86	2.33, 1913; 1.55, 1923
Air Temperature			
Highest	92, Sept. 2	95.8	104, 1911
Lowest	-11, Dec. 17	-12.1	-26.0, 1904
Mean	48.2	47.2	49.6, 1913; 44.0, 1904
Range	103	108.0	
Highest mean daily	78.5, Aug. 8, 26		
Lowest mean daily	0.5, Dec. 17		
Mean maximum	58.7	57.8	
Mean minimum	38.1	36.5	
Greatest daily range	48, May 24		
Least daily range	3, Jan. 9, 23; Oct. 18		
Precipitation			
Precipitation. In inches	39.42	43.49	57.05, 1897; 30.68, 1908
Snow, in inches	45.25	48.38	78.00, 1920; 24.50, 1919
Maximum precipitation 24 hrs.	2.86, Nov. 19th		
Number of days on which .01 or more inches of rain fell	125	123	144, 1902; 96, 1924
Wind (miles)			
Total movement	56,442	52,321	63,571, 1908; 36,257, 1894
Greatest daily movement	519, Mar. 8		
Least daily movement	20, Dec. 29		
Mean hourly velocity	6.4	6.0	
Maximum velocity for 5 min.	48, Mar. 31	35	42, 1912
Wind (direction)			
Prevailing direction	w	w	
North, days	28		
Northeast, days	8		
East, days	17		
Southeast, days	74		
South, days	37		
Southwest, days	17		
West, days	67		
Northwest, days	118		
Weather			
Mean relative humidity, per cent	64.9	75.8	82.9, 1927; 66.8, 1891
Mean cloudiness, per cent	57.3	50.8	60, '98, '01, '02; 41, '08, '24
Number of clear days	150	109	145, 1891; 59, 1927
Number of fair days	97	128	182, 1912; 83, 1894
Number of cloudy days	119	128	179, '01, '02; 71, 1910
Number of hours bright sunshine	2392.1	2,356	2,838, 1924; 1,864, 1902
Percent of possible hours of bright sunshine	53.7	53	
Last Frost	June 8	M'y 12	Apr. 23, 1904; June 3, 1908
First Frost	Sept. 11	S't 19	Aug. 22, '94, '95; Oct. 13, '09
Last Snow	April 27	Apr14	Mar. 14, '10; May 5, '91, '17
First Snow	Nov. 26	Nov 5	Oct. 10, '25; Nov. 27, 1931

NOTE—The first column in the above summary gives observations made during the year. The second and third columns give the averages and extremes observed from 1889 to 1931.

450-1933-6861

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 529 January, 1933

Meteorological Observations

FOR

JANUARY

1933

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	22	2 P	9	8 A	15.5	53	8.3	sw	209	10				
2	42	2 P	12	0 A	27.0	45	5.2	s	200	15				
3	42	3 P	20	8 A	31.0	71	3.7	se	80	12				
4	55	3 P	30	8 A	42.5	72	5.1	s	88	10				
5	48	0 A	30	12 P	39.0	52	6.6	w	208	25				
6	47	4 P	25	7 A	36.0	60	7.1	s	196	10				
7	47	4 P	32	0 A	39.5	65	0.6	se	255	48				
8	34	3 P	24	8 A	29.0	54	6.4	w	232	28				
9	32	7 P	24	3 A	28.0	80	0.0	se	80	11	8 A	8.30 P	.83	8.50
10	41	2 P	25	5 A	33.0	55	6.0	se	216	28				
11	47	8 P	33	0 A	40.0	68	0.7	se	292	20	9 P	12 P	0.15	
12	45	0 A	20	12 P	32.5	47	5.8	w	277	25	0 A	2.30 A	0.07	
13	25	3 P	13	8 A	19.0	60	4.9	w	51	4				
14	27	2 P	11	4 A	19.0	65	1.3	nw	145	14				
15	37	4 P	23	5 A	30.0	83	2.2	se	92	8				T
16	41	4 P	17	6 A	29.0	85	7.8	ne	39	3				
17	54	2 P	25	2 A	39.5	65	7.2	se	109	22				
18	42	3 P	26	12 P	34.0	51	9.0	nw	243	32				
19	46	10 P	24	4 A	35.0	83	0.0	se	87	20	6 A	1.30 P	0.79	
20	44	2 A	34	12 P	39.0	50	7.5	nw	375	39				
21	44	3 P	27	5 A	35.5	59	8.5	se	91	5				
22	37	8 P	30	0 A	33.5	84	0.0	nw	42	7	8 A	10.30 P	0.56	
23	51	4 P	36	0 A	43.5	66	8.3	w	163	25				
24	45	3 P	27	12 P	36.0	47	9.6	w	168	28				
25	40	3 P	19	7 A	29.5	68	7.5	nw	88	12				
26	42	3 P	32	8 A	37.0	64	3.7	n	246	20			T	T
27	37	2 P	34	12 P	35.5	69	0.0	n	219	18				T
28	37	4 P	31	8 A	34.0	63	2.1	nw	398	35				T
29	31	0 A	24	6 P	27.5	59	0.0	nw	552	32	11 A	5 P	0.04	0.50
30	37	2 P	18	3 A	27.5	59	8.6	nw	365	22				
31	41	2 P	26	7 A	33.5	65	7.6	nw	155	25				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

January, 1933		Normal	Extremes
Barometer			
(Readings reduced to sea level)			
Maximum	30.69, 13th	30.71	31.00, 1927
Minimum	29.36, 28th	29.18	28.55, 1913
Mean semi-daily	30.007	30.07	
Range	1.33	1.54	2.18, 1913; 0.97, 1896
Air Temperature			
Highest	55, 4th	50.4	66.,0 1932
Lowest	9, 1st	-7.4	-26.0, 1904
Mean	32.6	23.8	
Monthly range	46	58.2	
Highest mean daily	43.5 23rd		
Lowest mean daily	15.5, 1st		
Mean maximum	40.6		
Mean minimum	24.5		
Greatest daily range	30.0, 2nd		
Least daily range	4.0, 27th		
Precipitation			
Precipitation. In inches	2.44	3.42	7.15, 1898; 1.07, 1896
Snow, in inches	9.00	13	33, 1898, 1923; 1.75, 1911
Maximum precipitation 24 hrs.	.83, 9th		
Number of days on which .01 or more inches of rain fell	6	11	18, 1923; 4, 1889
Wind (miles)			
Total movement	5,961	5,068	7,770, 1908; 2,896, 1895
Greatest daily movement	552, 29th		
Least daily movement	39, 16th		
Mean hourly velocity	8	6.8	
Maximum velocity for 5 min.	39, 20th	30	40, 1913
(corrected to conform to 3 cup anemometer)			
Wind (direction)			
Prevailing direction	w	wnw	
North, days	2		
Northeast, days	1		
East, days	0		
Southeast, days	9		
South, days	3		
Southwest, days	1		
West, days	6		
Northwest, days	9		
Weather			
Mean relative humidity, per cent	63.4	78.2	85.3, 1927; 68.2, 1890
Mean cloudiness, per cent	69	54	66, 1898; 38, 1922
Number of clear days	14	8	16, 1922; 2, 1914
Number of fair days	7	10	18, 1890, 1926; 3, 1916
Number of cloudy days	10	13	22, 1923, 1931; 4, 1920
Number of hours bright sunshine	151.3	140	214, 1920; 76, 1923
Percent of possible hours of bright sunshine	51	47.6	

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1932.

REMARKS

The weather during January was marked with unusually high temperature and a small amount of precipitation. There was a total snowfall of 9 inches during the month but the ground was covered with snow for only four days. The mean temperature for the month was 32.6 degrees, the normal mean being 23.8 degrees. The mean of the past month has been exceeded only twice since the station was established in 1889. In 1913 the mean temperature for January was 34.2 degrees and in 1932 the mean temperature was 33 5 degrees. The lowest temperature recorded during the month was 9 degrees on the first. The normal minimum temperature for January is –7.4 degrees. The highest temperature recorded was 55 degrees on the 4th. The normal maximum is 50 4 degrees. In January 1932 the maximum temperature was 66 degrees on the 14th. The total precipitation was 2 44 inches as compared with a normal of 3 42 inches. Rain or snow fell on only 6 days while the normal number of days of rain or snow in January is 11 days. In spite of the lack of snow covering, there is practically no frost in the ground at the end of the month.

There were 151.3 hours of bright sunshine as compared with a normal of 140 hours. Fourteen days were recorded as "clear" while normally we have only 8 "clear" days. The total wind movement for the month was 5961 miles, the normal being 5068 miles. It is interesting to note that in 1908 the total wind movement in January was 7770 miles. The prevailing direction was west and the maximum velocity was 39 miles per hour on the 20th.

C. I. GUNNESS,
Meteorologist

HERBERT JENKINS,
Observer

450-1933-6861

V

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 530 February, 1933

Meteorological Observations

FOR

FEBRUARY

1933

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	43	2 P	22	7 A	32.5	75	6.3	nw	110	14	6 P	12 P	.10	
2	51	12 M	38	12 P	44.5	65	5.2	se	182	18				
3	39	1 P	30	9 P	34.5	48	4.7	nw	370	28				
4	35	11 A	23	7 A	29.0	63	4.5	se	214	28				T
5	28	0 A	11	12 P	19.5	53	2.6	w	256	32				T
6	25	1 P	7	7 A	16.0	45	8.0	w	245	20				
7	44	3 P	20	0 A	32.0	53	2.8	se	134	9	6 P	12 P	.25	
8	63	2 P	16	12 P	39.5	72	4.7	se	156	32	0 A	10 P	.54	T
9	17	1 P	6	7 A	11.5	44	7.3	w	449	39				T
10	16	4 P	5	7 A	10.5	46	8.6	s	171	12				
11	29	5 P	14	7 A	21.5	76	6.2	nw	184	32	3 A	10-30 A	.73	9.0
12	20	12 M	0	12 P	10.0	54	8.7	nw	213	18				
13	38	2 P	-7	4 A	15.5	62	10.5	se	119	12				
14	39	3 P	24	0 A	31.5	69	1.3	se	67	5				T
15	38	11 A	22	12 P	30.0	62	5.7	nw	223	30			T	
16	34	3 P	15	7 A	24.5	48	10.6	se	218	20				
17	41	3 P	24	7 A	32.5	60	6.7	se	172	15				
18	45	1 P	27	0 A	36.0	67	10.6	w	100	14				
19	42	2 P	21	6 A	31.5	56	9.6	e	123	15				
20	36	12 P	30	1 A	33.0	88	0.0	nw	121	11	4 A	1-30 P	0.90	
21	42	10 A	27	0 A	34.5	59	7.1	w	270	45				T
22	42	2 P	23	7 A	32.5	57	10.9	se	175	13				
23	55	3 P	31	0 A	43.0	64	6.0	se	201	25	6 A	7-30 A	0.05	
24	45	3 P	34	8 A	39.5	52	10.5	w	309	25				
25	32	3 P	25	6 A	28.5	75	0.0	se	86	7	3-30 P	12 P	0.76	7.50
26	33	1 P	24	7 P	28.5	84	4.1	nw	278	20	0 A	10-30 A	0.25	2.50
27	34	2 P	24	2 A	29.0	52	11.1	nw	475	32				
28	35	5 P	23	7 A	29.0	58	9.0	nw	408	28				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

February, 1933		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.65, 10th	30.63	31.05, 1920
Minimum	29.31, 8th	29.20	28.56, 1895
Mean semi-daily	29.949	30.03	
Range	1.34	1.43	1.89, 1900,1908; .88,1913,1931
Air Temperature			
Highest	63, 8th	50.3	65.0, 1930
Lowest	-7, 13th	-7.9	-22.5, 1918
Mean	28.6	23.5	
Monthly range	70	58.2	
Highest mean daily	44.5 2nd		
Lowest mean daily	10, 12th		
Mean maximum	37.2		
Mean minimum	20.0		
Greatest daily range	47, 8th		
Least daily range	6.0, 20th		
Precipitation			
Precipitation. In inches	3.58	3.35	8.12, 1900; 0.62, 1901
Snow, in inches	19.00	14.27	48.75, 1893; 2.5, 1912
Maximum precipitation 24 hrs.	1.01, 25th, 26th		
Number of days on which .01 or more inches of rain fell	8	10	15, 1893, 1920; 4, 1901
Wind (miles)			
Total movement	6,029	4,833	6,445, 1896; 3,438, 1892
Greatest daily movement	475, 27th		
Least daily movement	67, 14th		
Mean hourly velocity	8.9	7.1	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	45, 21st	29	42, 1912
Wind (direction)			
Prevailing direction	sw	wnw	
North, days	0		
Northeast, days	0		
East, days	1		
Southeast, days	11		
South, days	1		
Southwest, days	0		
West, days	6		
Northwest, days	9		
Weather			
Mean relative humidity, per cent	61	77.9	90, 1889; 66.8, 1902
Mean cloudiness, per cent	57	50.5	66, 1890, 1927; 31, 1905
Number of clear days	13	10	17, 1924; 2, 1927
Number of fair days	10	8	16, 1920; 3, 1890
Number of cloudy days	5	10	16, 1894; 2, 1920
Number of hours bright sunshine	183.3	160	221, 1924; 110, 1927
Percent of possible hours of bright sunshine	62	54.1	

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 18·9 to 1928. The third column gives extremes observed from 1889 to 1932.

REMARKS

The weather during February was considerably warmer than usual with a mean temperature of 28.6 degrees The normal mean temperature for the month is 23.5 degrees. The highest temperature was 63 degrees which has been exceeded only once during February at this station. In February 1930 a temperature of 65 degrees was recorded. The lowest temperature during the month was −7.0 degrees on the 13th. The normal minimum temperature for February is −7.9 degrees The lowest temperature recorded at this station in February was −22.5 degrees in 1918. The total precipitation during the month was 3.58 inches, the normal being 3 35 inches. The snowfall was 19 inches. The normal snowfall during February is 14.27 inches. The greatest snowfall observed in February was 48.75 inches in 1893 and the least, 2.5 inches in 1912. There was no snow on the ground from the 1st to the 11th. On that day 9 inches fell. By the 22nd only a trace of snow remained and it had all disappeared by the 25th. A fall of 10 inches on the 25th had decreased to 5 inches on the 28th. There were 183 3 hours of bright sunshine, the normal being 160 hours. The total wind movement during the month was 6029 miles. The normal wind movement during February is 4833 miles. The maximum wind velocity during the month was 45 miles per hour on the 21st. The prevailing wind direction was southwest. The mean relative humidity during the month was 61 per cent.

C. I. GUNNESS,
Meteorologist

HERBERT JENKINS,
Observer

450-1933-6861

V

MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION

Meteorological Series   Bulletin No. 531   March, 1933

Meteorological Observations

FOR

MARCH

1933

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N.   Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft.   Above sea level, 253.5 ft.
Height of wind instruments 67 ft.   Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	33	1 P	30	7 A	31.5	76	3.9	nw	230	15	8 A	12 P	.11	1.5
2	38	4 P	30	0 A	34.0	81	3.6	nw	238	19	3 A	8 A	.04	0.5
3	37	3 P	33	0 A	35.0	72	1.8	nw	384	28				
4	39	3 P	30	1 A	34.5	54	5.2	nw	272	28				
5	33	3 P	25	8 A	29.0	54	11.3	nw	433	30				
6	34	2 P	12	7 A	23.0	41	9.3	nw	168	18				
7	38	4 P	26	6 A	32.0	70	0.7	nw	60	10	4-30 P	12 P	.22	
8	40	7 P	34	0 A	37.0	77	0.0	nw	201	17	0 A	3-30 P	.53	
9	38	1 A	25	12 P	31.5	46	6.1	w	379	45				T
10	21	1 P	14	12 P	17.5	39	7.1	w	454	35				
11	25	3 P	7	7 A	16.0	39	11.6	nw	405	25				
12	37	3 P	13	6 A	25.0	58	10.8	w	159	25				
13	37	2 P	27	3 A	32.0	80	0.0	n	101	11	0 A	12 P	.25	.25
14	34	4 P	31	0 A	32.5	82	0.0	n	105	7	0 A	11 A	.41	
15	38	3 P	31	6 A	34.5	76	1.3	nw	206	32	6-30 A	1 P	.42	
16	34	5 P	20	6 A	27.0	48	11.9	nw	364	23				
17	57	4 P	28	0 A	42.5	48	9.1	se	185	11				
18	41	2 P	33	7 A	37.0	51	2.1	nw	122	11				
19	33	12 M	27	10 P	30.0	64	0.0	nw	133	10	12 M	12 P	.25	2.50
20	36	12 M	28	0 A	32.0	83	0.0	nw	125	10	0 A	11 P	.45	.50
21	39	11 P	33	0 A	36.0	89	0.0	nw	165	25	3 A	3 P	1.60	
22	40	11 A	34	6 A	37.0	53	1.6	nw	306	20				
23	38	11 A	28	12 P	33.0	51	5.4	nw	250	15				
24	43	4 P	22	7 A	32.5	48	12.2	nw	215	20				
25	49	3 P	25	7 A	37.0	49	10.5	w	146	17				
26	42	5 P	33	8 A	37.5	74	2.0	n	146	17	0 A	12 M	.14	.50
27	51	2 P	28	6 A	39.5	55	9.9	nw	200	19				
28	41	11 A	27	5 A	34.0	71	0.0	nw	72	15	12 M	12 P	.15	.25
29	47	2 P	31	6 A	39.0	48	10.9	nw	332	35	0 A	1 A	.01	T
30	51	3 P	31	6 A	41.0	36	12.6	nw	318	35				
31	54	1 P	25	6 A	39.5	56	7.9	s	114	14	7 P	12 P	.21	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

March, 1933		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.37, 16th	30.60	30.96, 1904
Minimum	28.99, 8th	29.26	28.47, 1914
Mean semi-daily	29.918	30.02	
Range	1.38	1.35	2.10, 1914; 0.85, 1915
Air Temperature			
Highest	57, 17th	63.9	79.5,1907, 1921
Lowest	7, 11th	5.7	−7.5, 1906
Mean	32.9	34.2	
Monthly range	50	58.2	
Highest mean daily	42.5, 17th		
Lowest mean daily	16, 11th		
Mean maximum	39.3		
Mean minimum	26.5		
Greatest daily range	29, 17th, 31st		
Least daily range	3, 1st, 14th		
Precipitation			
Precipitation. In inches	4.79	3.68	7.13, 1899; 0.12, 1915
Snow, in inches	6.00	8.11	27, 1899; 0, 1921
Maximum precipitation 24 hrs.	1.80, 20th, 21st		
Number of days on which .01 or more inches of rain fell	14	11	17, 1890, 1913; 3, 1915
Wind (miles)			
Total movement	6,988	5,738	7,485, 1911; 3,006, 1905
Greatest daily movement	454, 10th		
Least daily movement	60, 7th		
Mean hourly velocity	9.4	7.7	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	45, 9th	29	39, 1913
Wind (direction)			
Prevailing direction	nw	wnw	
North, days	3		
Northeast, days	0		
East, days	0		
Southeast, days	1		
South, days	1		
Southwest, days	0		
West, days	4		
Northwest, days	22		
Weather			
Mean relative humidity, per cent	60.3	75.0	86.8, 1916; 61.6, 1930
Mean cloudiness, per cent	60	51.0	68, 1901; 27, 1915
Number of clear days	12	11	22, 1924; 3, 1901
Number of fair days	6	9	17, 1900; 4, 1895
Number of cloudy days	13	11	21, 1901; 1, 1915
Number of hours bright sunshine	168.8	201	292, 1924; 93, 1901
Percent of possible hours of bright sunshine	46	54.2	
Thunder and Lightning	21st		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 18 9 to 1928. The third column gives extremes observed from 1889 to 1932.

REMARKS

The weather during the month of March was somewhat colder than usual, with less sunshine than normal and slightly greater precipitation than usual. The mean temperature for the month was 32.9 degrees, the normal being 34.2. The highest temperature was 57 degrees on the 17th and the lowest was 7 degrees on the 11th. The normal maximum for March is 63.9 degrees and the normal minimum is 5.7 degrees. The total precipitation during the month was 4.79 inches, the normal being 3.68 inches. Six inches of snow fell during the month while the usual snowfall in March is 8.11 inches. There were about 5 inches of snow on the ground on the 1st. This had melted by the 8th. Two and one-half inches of snow fell on the 19th and this melted by the 23rd. The total precipitation since the first of the year is now 10.81 inches. The normal precipitation for this period is 10.45 inches. There were 168.8 hours of bright sunshine, the normal being 201 hours. The total wind movement for the month was 6988 as compared with a normal wind movement of 5738. The maximum velocity was 45 miles per hour on the 9th. The prevailing direction was Northwest.

Dr. J. K. Shaw reports that peach buds have come through the winter satisfactorily in spite of the warm weather during January and February. There has been some injury on low land but not enough to be considered serious.

It may be of interest to note that the total snowfall during the past winter up to March 31 was 42.50 inches. The normal snowfall for this period is 46.42 inches. The mean temperature for the period from November 1, 1932 to March 31, 1933 was 32.5 degrees. The normal temperature for this period is 29.5 degrees.

C. I. GUNNESS,
Meteorologist

HERBERT JENKINS,
Observer

450-1933-6861

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 532 April, 1933

Meteorological Observations

FOR

APRIL

1933

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	42	1 P	36	3 A	39.0	88	0.0	nw	104	12	0 A	12 P	.68	
2	60	2 P	37	2 A	48.5	69	6.2	nw	105	18	0 A	2 A	.01	
3	46	3 P	39	12 P	42.5	81	3.3	e	134	10	4 A	8 A	.05	
4	44	8 P	35	6 A	39.5	79	0.0	nw	226	35	2-30 A	4 P	.57	
5	58	4 P	36	6 A	47.0	52	12.7	w	346	35				
6	56	2 P	30	5 A	43.0	54	6.0	w	78	12	8 P	8-30 P	.04	
7	47	4 P	41	12 P	44.0	81	0.2	ne	144	18	0 A	2-30 P	.20	
8	47	4 P	36	6 A	41.5	54	4.7	w	268	23				
9	53	4 P	37	6 A	45.0	51	8.0	nw	231	14				
10	57	2 P	31	4 A	44.0	51	13.0	ne	107	10				
11	54	11 A	33	7 A	43.5	55	4.5	e	192	18	8 P	12 P	.02	
12	38	11 A	34	11 P	36.0	85	0.0	e	164	20	0 A	12 P	1.47	4.00
13	45	3 P	32	2 A	38.5	73	7.6	ne	290	18	0 A	7 A	.51	2.00
14	50	12 M	36	3 A	43.0	79	1.2	n	149	15	7-30 A	8 A	.03	
15	58	5 P	41	0 A	49.5	72	3.0	nw	75	8				
16	55	5 P	43	5 A	49.0	87	0.0	nw	82	7	7 A	8 P	.07	
17	58	4 P	47	8 A	52.5	88	0.0	nw	132	17	0 A	12 P	.35	
18	55	2 P	45	12 P	50.0	86	0 0	n	127	10	12 M	8 P	.55	
19	53	3 P	32	12 P	42.5	44	3.1	n	277	22				
20	55	5 P	30	5 A	42.5	50	13.5	ne	169	13				
21	65	4 P	28	6 A	46.5	46	12.4	se	70	11				
22	48	1 P	27	12 P	37.5	47	10.2	n	241	22				
23	53	4 P	22	5 A	37.5	36	13.7	nw	296	17				
24	72	3 P	38	6 A	55.0	36	13.7	sw	208	25				
25	68	11 A	43	6 A	55.5	64	2.3	se	129	20	12 M	5-30 P	.30	
26	51	0 A	34	12 P	42.5	60	1.7	nw	210	25	6-30 A	9-30 A	.18	T
27	44	4 P	31	2 A	37.5	49	10.5	w	263	30				
28	59	3 P	25	6 A	42.0	53	10.3	s	164	21				
29	74	4 P	50	0 A	62.0	63	9.7	se	237	25				
30	78	3 P	43	6 A	60.5	52	14.0	se	139	18				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

April, 1933		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.49, 20th	30.48	30.71, 1911
Minimum	29.35, 26th	29.41	29.07, 1930
Mean semi-daily	29.995	29.99	
Range	1.14	1.08	1.52, 1930; 0.72, 1919
Air Temperature			
Highest	78, 30th	79.5	88.5, 1896
Lowest	22, 23rd	21.6	8.5, 1923
Mean	45.3	45.8	
Monthly range	56	57.8	
Highest mean daily	62, 29th		
Lowest mean daily	36, 12th		
Mean maximum	54.8		
Mean minimum	35.7		
Greatest daily range	37, 21st		
Least daily range	4, 12th		
Precipitation			
Precipitation. In inches	5.03	3.27	6.89, 1929; 0.76, 1892
Snow, in inches	6.00	2.32	11, 1891; 0, 1910
Maximum precipitation 24 hrs.	1.47, 12th		
Number of days on which .01 or more inches of rain fell	15	11	18, 1909; 3, 1892
Wind (miles)			
Total movement	5,357	5,436	8,208 1908; 3,853, 1917
Greatest daily movement	346, 5th		
Least daily movement	70, 21st		
Mean hourly velocity	7.4	7.5	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	35, 4th, 5th	29	39, 1916, 1931, 1932
Wind (direction)			
Prevailing direction	nnw	wnw	
North, days	4		
Northeast, days	4		
East, days	3		
Southeast, days	4		
South, days	1		
Southwest, days	1		
West, days	4		
Northwest, days	9		
Weather			
Mean relative humidity, per cent	62.8	69.6	81.2, 1916; 54.5, 1892
Mean cloudiness, per cent	63	49.2	75, 1901; 34, 1925, 1927
Number of clear days	11	11	19, 1911; 3, 1898, 1902
Number of fair days	6	10	18, 1915; 2, 1894, 1901
Number of cloudy days	13	9	22, 1901; 3, 1899, 1924
Number of hours bright sunshine	185.5	221	296, 1911; 103, 1901
Percent of possible hours of bright sunshine	46	55	
Frosts after the 15th: 20th, 21st, 22nd, 23rd, 28th			
Thunder and Lightning			

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1932.

REMARKS

The month of April has been marked with more rain than usual and a small amount of sunshine. Rain fell on 15 days during the month. The total precipitation was 5.03 inches as compared with a normal of 3.27 inches. This brings the total precipitation since January 1 to 15.84 inches. The normal precipitation for this period is 13.72 inches. Six inches of snow fell during the storm on April 12 and 13. This is the heaviest snowfall recorded at this late date in the spring. There were only 185.5 hours of bright sunshine, the normal for April being 221 hours. The temperature during the month was very nearly normal. The mean temperature was 45.3 degrees, the normal mean being 45.8 degrees. The maximum temperature was 78 degrees on the 30th and the lowest was 22 degrees on the 23rd. The total wind movement was 5357 miles with the highest velocity of 35 miles per hour on the 4th and 5th.

Dr. J. K. Shaw reports that fruit buds are somewhat more advanced than usual for the end of April and except for a few reports of winter damage to peaches on low land, the prospects for the fruit crop are good.

C. I. GUNNESS,
Meteorologist

HERBERT JENKINS,
Observer

450-1933-6861

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 533 May, 1933

Meteorological Observations

FOR

MAY

1933

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	77	2 P	52	6 A	64.5	69	8.7	se	234	22				
2	78	2 P	59	5 A	68.5	67	8.4	se	240	32				
3	75	1 P	56	12 P	65.5	78	2.7	s	248	15	2-30 P	4 P	.45	
4	61	5 P	40	12 P	50.5	52	14.1	nw	302	30				
5	63	5 P	33	3 A	48.0	45	11.8	nw	94	15				
6	57	2 P	41	6 A	49.0	56	0.0	s	74	12			T	
7	71	2 P	39	6 A	55.0	34	13.7	nw	184	21				
8	61	4 P	35	5 A	48.0	40	10.2	ne	219	11				
9	62	2 P	41	5 A	51.5	51	5.6	se	161	20	10 P	12 P	.06	
10	53	4 P	43	2 A	48.0	81	0.0	n	137	8	0 A	8 A	.17	
11	69	3 P	34	5 A	51.5	62	9.7	se	113	18				
12	76	5 P	44	6 A	60.0	72	10.1	se	121	12				
13	71	3 P	56	6 A	63.5	85	2.5	se	181	17				
14	72	5 P	60	12 P	66.0	38	5.3	w	240	22				
15	73	4 P	51	5 A	62.0	42	14.5	w	236	28				
16	72	4 P	48	12 P	60.0	45	8.0	w	100	9				
17	74	5 P	38	5 A	56.0	37	14.6	nw	114	13				
18	83	4 P	39	5 A	61.0	42	13.5	se	92	8				
19	87	3 P	45	5 A	66.0	45	12.5	se	147	16				
20	85	1 P	57	12 P	71.0	64	11.6	w	175	32	7 P	9 P	.62	
21	75	4 P	55	12 P	65.0	78	9.3	se	113	12				
22	73	5 P	48	12 P	60.5	63	12.8	nw	122	14				
23	78	2 P	41	5 A	59.5	54	11.7	w	80	13				
24	74	11 A	56	5 A	65.0	64	7.5	w	128	10				
25	79	5 P	56	5 A	67.5	70	6.9	se	81	12				
26	86	3 P	54	5 A	70.0	61	9.7	w	88	17				
27	86	1 P	57	12 P	71.5	75	5.2	se	117	25	6 P	9 P	.07	
28	81	3 P	55	5 A	68.0	63	9.7	nw	64	11				
29	66	5 P	54	12 P	60.0	84	0.0	se	112	8				
30	64	5 P	52	4 A	58.0	83	0.0	e	120	8	3-30 A	10 P	.17	
31	71	5 P	60	0 A	65.5	87	0.0	se	69	14	6 A	9 A	.15	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

May, 1933	Normal	Extremes
Barometer (Readings reduced to sea level)		
Maximum 30.24, 18th	30.38	30.55, 1895
Minimum .29.51, 27th	29.51	29.16, 1893
Mean semi-daily 29.943	29.95	
Range 0.73	.88	1.16, 1893; 0.60, 1899
Air Temperature		
Highest 87, 19th	85.5	94.5, 1911
Lowest 33, 5th	30.8	24.0, 1900
Mean 60.5	56.8	
Monthly range 54	54.6	
Highest mean daily 71.5, 27th		
Lowest mean daily 48, 5th, 8th, 10th		
Mean maximum 72.7		
Mean minimum 48.4		
Greatest daily range 44, 18th		
Least daily range 10,10th		
Precipitation		
Precipitation. In inches 1.69	3.63	7.44, 1931; 0.48, 1903
Snow, in inches		
Maximum precipitation 24 hrs. .62, 20th		
Number of days on which .01 or more inches of rain fell 7	12	20, 1901; 5, 1903
Wind (miles)		
Total movement 4,506	4,540	5,946, 1907; 2,180, 1894
Greatest daily movement 302, 4th		
Least daily movement 64, 28th		
Mean hourly velocity 6.1	6.1	
Maximum velocity for 5 min. 32,2nd,20th (corrected to conform to 3 cup anemometer)	25	35, 1912
Wind (direction)		
Prevailing direction s	w	
North, days 1		
Northeast, days 1		
East, days 1		
Southeast, days 13		
South, days 2		
Southwest, days 0		
West, days 7		
Northwest, days 6		
Weather		
Mean relative humidity, per cent 60.9	70.7	83.9, 1927; 59.3, 1891
Mean cloudiness, per cent 61	51.5	70, 1901; 30, 1923
Number of clear days 12	10	20, 1923; 0, 1927
Number of fair days 12	11	17, 1907, 1926; 5, 1923
Number of cloudy days 7	10	20, 1927; 3, 1903, 1922
Number of hours bright sunshine 250.3	250.1	334, 1922; 137, 1927
Percent of possible hours of bright sunshine 55	55.2	
Frosts, 5th, 8th, 11th		
Last Frosts	12th	J'e. 3, 1908; Apr. 23, 1904
Thunder and Lightning, 3rd, 20th, 27th		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1932.

REMARKS

The rainfall during the month of May was only 1.69 inches which is less than half the normal rain for May, the normal being 3.63 inches. The total rainfall since the first of the year is 17.53 inches while the normal for this period is 17.35 inches. The dry weather during the month has been favorable for spring work. The mean temperature during the month was 60.5 degrees, the normal mean temperature for May being 56.8 degrees. The highest temperature was 87 degrees on the 19th and the lowest 33 degrees on the 5th. The normal maximum for May is 85.5 degrees and the normal minimum is 30.8 degrees. The last frost was on the 11th while the normal date for the last frost is May 12. There were 250.3 hours of bright sunshine which is the normal sunshine for May.

C. I. GUNNESS,
Meteorologist

HERBERT JENKINS,
Observer

450-1933-6861

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 534 June, 1933

Meteorological Observations

FOR

JUNE

1933

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	66	3 P	45	12 P	55.5	50	5.1	w	255	22				
2	76	5 P	36	5 A	56.0	48	15.1	e	82	17				
3	89	4 P	47	5 A	68.0	69	12.7	sw	144	36	6 P	8-30 P	.19	
4	80	5 P	60	5 A	70.0	56	12.6	nw	111	11				
5	84	3 P	62	5 A	73.0	61	12.8	se	92	5				
6	84	4 P	62	4 A	73.0	77	6.2	nw	97	8	2 A	7-30 A	.53	
7	86	3 P	58	5 A	72.0	73	7.5	se	80	8			T	
8	94	3 P	63	4 A	78.5	63	15.2	se	98	12				
9	95	3 P	64	5 A	79.5	73	12.0	se	104	35	5 P	11 P	1.24	
10	84	6 P	65	12 P	74.5	59	13.0	w	138	15				
11	85	3 P	57	5 A	71.0	61	15.0	se	98	9				
12	90	2 P	64	12 P	77.0	50	12.3	w	178	20				
13	72	1 P	48	12 P	60.0	56	9.8	nw	216	20	3-30 A	4-30 A	.02	
14	65	1 P	43	5 A	54.0	54	13.8	nw	178	18				
15	68	5 P	38	5 A	53.0	51	15.0	nw	80	8				
16	62	4 P	52	5 A	57.0	77	0.0	se	103	8			T	
17	77	12 M	54	6 A	65.5	66	5.0	se	94	20	12 M	7 P	.04	
18	58	6 P	45	4 A	51.5	86	0.0	nw	134	20	8-30 A	3-30 P	.18	
19	73	5 P	51	4 A	62.0	57	15.3	nw	241	22				
20	77	3 P	50	5 A	63.5	55	13.0	sw	78	14				
21	78	5 P	55	4 A	66.5	81	4.0	se	150	9	8 A	11-30 P	.25	
22	87	4 P	62	2 A	74.5	67	15.3	nw	145	14				
23	79	4 P	54	4 A	66.5	44	15.3	nw	171	20				
24	88	2 P	44	5 A	66.0	57	12.8	se	126	17				
25	86	3 P	60	4 A	73.0	70	7.0	se	127	7				
26	77	4 P	68	5 A	72.5	84	0.3	se	122	7	10 A	12 M	.11	
27	88	3 P	69	5 A	78.5	82	3.5	se	76	6				
28	92	4 P	68	4 A	75.0	79	7.5	se	89	6				
29	97	2 P	70	6 A	83.5	74	6.0	se	106	22	2-45 P	4-30 P	1.10	
30	85	1 P	70	5 A	77.5	80	5.8	se	161	13	9 P	9-30 P	.02	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

June, 1933		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.17, 15th, 24th	30.31	30.54, 1889
Minimum	29.62, 30th	29.56	29.24, 1902
Mean semi-daily	29.908	29.961	
Range	0.55	.75	1.27, 1902; 0.52, 1916
Air Temperature			
Highest	97, 29th	91.1	101.0, 1919
Lowest	36, 2nd	40.0	34.0, 1891
Mean	68.3	65.4	
Monthly range	61	51.2	
Highest mean daily	83.5, 29th		
Lowest mean daily	51.5, 18th		
Mean maximum	80.7		
Mean minimum	56.1		
Greatest daily range	44, 24th		
Least daily range	9, 26th		
Precipitation			
Precipitation. In inches	3.68	3.54	9.68, 1922; 0.76, 1908
Snow, in inches			
Maximum precipitation in 24 hrs.	1.24, 9th		
Number of days on which .01 or more inches of rain fell	10	10	17, 1922; 4, 1908
Wind (miles)			
Total movement	3,874	3,584	4,571, 1908; 1,409, 1906
Greatest daily movement	255, 1st		
Least daily movement	76, 27th		
Mean hourly velocity	5.4	5.0	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	36, 3rd	23	40, 1932
Wind (direction)			
Prevailing direction	s	wsw	
North, days	0		
Northeast, days	0		
East, days	1		
Southeast, days	15		
South, days	0		
Southwest, days	2		
West, days	3		
Northwest, days	9		
Weather			
Mean relative humidity, per cent	65.3	73.9	85.9, 1922; 63.2, 1932
Mean cloudiness, per cent	49.5	50.1	71, 1903; 28, 1908
Number of clear days	16	9	22, 1908; 1, 1907, 1926
Number of fair days	9	13	23, 1912; 4, 1895, 1903
Number of cloudy days	5	8	22, 1903; 1, 1923
Number of hours bright sunshine	288.9	257.4	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	63.2	56.2	
Thunder and Lightning,	3rd, 6th, 9th 21st, 29th		
Frosts,	2nd		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1932.

REMARKS

The weather during the month of June was considerably warmer than usual with very high temperature on several days. The mean temperature for the month was 68.3 degrees, the normal mean temperature for June being 62.9 degrees. The highest temperature was 97 degrees on the 29th. Temperatures of 94 and 95 degrees were recorded on the 8th and 9th respectively. Maximum June temperature of 97 degrees were recorded in 1923 and 1925, in 1901 a temperatures of 98.5 degrees was recorded, and the highest June temperature recorded at this station was 101 degrees in 1919. The The lowest temperature was 36 degrees on the 2nd with a light frost. The rainfall during the month was 3.68 inches, which is .12 inch greater than normal. Local showers on the 29th gave 1.10 inches with no rain at points a very few miles from the station. The total precipitation since January 1 is now 21.21 inches, the normal being 20.89 for this period. There was considerably more sunshine than normal with a total of 288.9 hours, the normal being 257.4 hours. There were 16 days recorded as clear. The wind movement for the month was 3874 miles, the normal for June being 3584 miles. The maximum velocity was 36 miles per hour on the 3rd. Thunder and lightning occurred on the 3rd, 6th, 9th, 21st, and 29th.

C. I. GUNNESS,
Meteorologist

F. R. SHAW,
Observer

450-1933-6861

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 535 July, 1933

Meteorological Observations

FOR

JULY

1933

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	95	1 P	75	6 A	85.0	64	12.6	w	199	14				
2	77	1 P	60	12 P	68.5	59	9.7	e	145	15	2 A	3 A	.13	
3	69	2 P	53	12 P	61.0	69	4.8	ne	132	15				
4	83	1 P	52	4 A	67.5	69	5.0	n	129	20				
5	68	1 P	55	6 A	61.5	68	2.5	n	179	18	1 A	4 A	.32	
6	87	5 P	54	4 A	70.5	57	15.2	w	95	14				
7	93	6 P	63	5 A	78.0	55	12.0	sw	89	10				
8	93	3 P	66	6 A	79.5	66	6.0	se	116	28	5 P	6 P	.61	
9	77	2 P	59	12 P	68.0	73	6.5	nw	120	17	3 A	4 A	.15	
10	77	11 A	52	5 A	64.5	75	6.0	w	84	25	4 P	9 P	.39	
11	78	4 P	57	7 A	67.5	76	10.1	nw	93	13				
12	75	3 P	52	12 P	63.5	63	8.5	e	137	7				
13	80	4 P	47	5 A	63.5	59	15.0	s	73	7				
14	83	3 P	54	5 A	68.5	66	15.0	se	102	9				
15	78	3 P	56	7 A	67.0	81	2.0	nw	65	8				
16	71	6 P	58	6 A	64.5	85	0.3	se	84	7				
17	83	4 P	62	12 P	72.5	81	8.3	se	108	10				
18	86	2 P	53	6 A	69.5	59	13.5	w	71	12				
19	87	4 P	56	5 A	71.5	56	15.0	w	85	15				
20	90	4 P	59	6 A	74.5	66	7.9	se	72	12				
21	92	3 P	65	6 A	78.5	83	2.5	se	98	10			T	
22	93	1 P	68	6 A	80.5	75	3.0	ne	142	9				
23	96	4 P	68	7 A	82.0	74	10.4	ne	90	7	0 A	1 A	.03	
24	96	3 P	68	5 A	82.0	85	8.5	s	100	10	6-30 P	12 P	.39	
25	75	0 A	59	12 P	67.0	90	0.0	sw	122	10	7-30 A	12 P	.23	
26	81	4 P	55	2 A	68.0	68	11.1	sw	89	13				
27	86	3 P	55	5 A	70.5	67	10.1	sw	52	7				
28	91	1 P	58	7 A	74.5	61	13.0	se	145	12				
29	96	3 P	66	5 A	81.0	65	13.8	sw	148	12				
30	97	5 P	78	4 A	87.5	58	13.2	sw	118	11				
31	96	5 P	70	5 A	83.0	64	13.0	nw	80	11			T	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

July, 1933		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.31, 3rd, 4th	30.28	30.50, 1892
Minimum	29.57, 1st	29.60	29.27, 1932
Mean semi-daily	29.993	29.972	
Range	0.74	.68	0.97, 1892; 0.51, 1895, 1899
Air Temperature			
Highest	97, 30th	93.9	104.0, 1911
Lowest	47, 13th	45.5	40.0, 1890, 1898
Mean	72.3	70.6	
Monthly range	50	48.4	
Highest mean daily	87.5, 30th		
Lowest mean daily	61.0, 3rd		
Mean maximum	84.8		
Mean minimum	59.8		
Greatest daily range	33, 6th, 13th, 18, 28th		
Least daily range	13, 5th, 16th		
Precipitation			
Precipitation. In inches	2.25	4.33	14.51, 1897; 0.70, 1929
Snow, in inches			
Maximum precipitation in 24 hrs.	.76, 8th, 9th		
Number of days on which .01 or more inches of rain fell	8	11	20, 1915; 4, 1924
Wind (miles)			
Total movement	3,362	3,435	5,097, 1909; 1,109, 1894
Greatest daily movement	199, 1st		
Least daily movement	52, 27th		
Mean hourly velocity	4.5	4.6	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	28, 8th	24	39, 1908, 1915
Wind (direction)			
Prevailing direction	sw	sw	
North, days	2		
Northeast, days	3		
East, days	2		
Southeast, days	7		
South, days	2		
Southwest, days	6		
West, days	5		
Northwest, days	4		
Weather			
Mean relative humidity, per cent	69.0	75.6	88.8, 1927; 64.8, 1893
Mean cloudiness, per cent	58.2	50.1	69, 1914; 31, 1924
Number of clear days	13	9	22, 1923; 0, 1915
Number of fair days	12	14	24, '09, '21; 5, '89, '23, '28
Number of cloudy days	6	8	18, 1889; 0, 1910
Number of hours bright sunshine	274.5	267.0	371, 1910; 182, 1889
Percent of possible hours of bright sunshine	59.4	57.8	
Thunder and Lightning,	8th, 23rd, 24th 31st		
Frosts,			

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1932.

REMARKS

The weather during July has been hot and dry. The mean temperature during the month was 72.3 degrees, the normal being 70.6. The maximum temperature was 97 degrees on the 30th. A temperature of 96 degrees was reached on four other days during the month. The normal maximum temperature for July is 93.9 degrees. In 1911 the maximum for July was 104 degrees. The lowest temperature was 47 degrees on the 13th. The total precipitation for the month was 2.25 inches, the normal being 4.33 inches. The total precipitation since January 1 is now 23.46 inches, the normal for this period being 25.22 inches. The rainfall for the season on April 1 was .36 above normal so the deficiency during the growing season is 2.12 inches. The hot weather and drouth has injured crops, particularly tobacco, onions, and the second crop of hay. There were 274.5 hours of bright sunshine compared with a normal of 267 hours. The relative humidity for the month was 69 per cent. The prevailing wind direction was southwest with no high winds and a normal wind movement.

C. I. GUNNESS,
Meteorologist

F. R. SHAW,
Observer

450-1933-6861

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 536 August, 1933

Meteorological Observations

FOR

AUGUST

1933

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	98	3 P	68	5 A	83.0	73	9.0	se	132	11				
2	91	4 P	72	4 A	81.5	50	14.5	w	147	14				
3	88	3 P	62	6 A	75.0	69	11.9	nw	107	12	7 P	12 P	.32	
4	76	7 P	59	6 A	67.5	79	5.3	nw	143	14	0 A	8 A	1.31	
5	84	6 P	51	6 A	67.5	74	13.1	w	62	18			T	
6	82	4 P	53	6 A	67.5	61	11.0	nw	92	14				
7	82	3 P	51	6 A	67.5	70	13.0	se	148	11				
8	73	1 P	61	5 A	67.0	80	0.3	se	129	17	1 P	12 P	.16	
9	78	5 P	56	12 P	67.0	67	14.2	nw	158	18				
10	76	1 P	47	6 A	61.5	70	8.7	w	46	6				
11	80	3 P	58	6 A	69.0	65	9.6	e	116	13	1 A	4 A	.02	
12	78	6 P	63	4 A	70.5	78	2.5	se	88	6				
13	87	3 P	63	12 P	75.0	76	6.4	se	166	17	8-30 P	12 P	1.32	
14	75	4 P	56	12 P	65.5	87	3.5	nw	85	10	0 A	2 P	.31	
15	80	3 P	50	7 A	65.0	64	13.2	w	64	9	4 A	5 A	.01	
16	84	4 P	53	7 A	68.5	65	13.9	sw	75	7				
17	67	11 A	63	6 A	65.0	89	0.0	sw	101	8	8 A	6 P	.12	
18	71	11 A	64	6 A	67.5	89	0.0	sw	114	9	9 A	6 P	.27	
19	76	3 P	68	6 A	72.0	87	0.5	sw	64	10	12 M	1 P	.02	
20	81	2 P	60	12 P	73.0	75	3.0	n	109	12				
21	70	1 P	58	5 A	64.0	79	0.0	nw	107	11	6 P	12 P	.13	
22	73	4 P	57	2 A	65.0	79	2.6	nw	145	10	0 A	10 A	.28	
23	76	1 P	58	5 A	67.0	82	0.8	n	145	20	7 P	12 P	.41	
24	76	4 P	68	3 A	72.0	91	0.0	se	303	20	0 A	8 P	1.12	
25	77	7 P	69	6 A	73.0	73	0.0	s	165	17				
26	86	5 P	62	6 A	74.0	71	13.5	nw	112	17				
27	86	5 P	63	6 A	74.5	71	13.5	w	82	13				
28	82	1 P	60	6 A	71.0	83	3.0	w	43	18	2 P	12 P	.65	
29	73	3 P	55	12 P	64.0	63	13.3	n	213	19	0 A	6 A	.18	
30	79	4 P	50	7 A	64.5	65	13.3	nw	62	8				
31	75	1 P	50	6 A	62.5	72	3.5	s	46	6				

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*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

August, 1933		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.35, 7th	30.32	30.48, 1918
Minimum	29.53, 25th	29.63	28.87, 1930
Mean semi-daily	30.011	30.00	
Range	0.82	.69	1.49, 1930; 0.44, 1894
Air Temperature			
Highest	98, 1st	91.3	100.0, 1918
Lowest	47, 10th	42.9	37.0, 1894, 1908
Mean	69.3	68.4	
Monthly range	51	48.4	
Highest mean daily	83, 1st		
Lowest mean daily	61.5, 10th		
Mean maximum	79.4		
Mean minimum	59.0		
Greatest daily range	33, 5th		
Least daily range	4, 17th		
Precipitation			
Precipitation. In inches	6.63	4.24	8.40, 1928; 0.31, 1894
Snow, in inches			
Maximum precipitation in 24 hrs.	1.63, 3rd and 4th, 13th and 14th		
Number of days on which .01 or more inches of rain fell	16	10	16, 1892; 4, 1899
Wind (miles)			
Total movement	3,569	3,099	4,271, 1910; 1,920, 1894
Greatest daily movement	303, 24th		
Least daily movement	43, 28th		
Mean hourly velocity	4.8	4. 2	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	20, 23rd, 24th	21	35, 1915
Wind (direction)			
Prevailing direction	w	sw	
North, days	3		
Northeast, days	0		
East, days	1		
Southeast, days	6		
South, days	2		
Southwest, days	4		
West, days	6		
Northwest, days	9		
Weather			
Mean relative humidity, per cent	74.1	78.4	87.3, 1927; 65, 1929
Mean cloudiness, per cent	54.5	49.4	67, 1901; 27, 1923
Number of clear days	12	9	17, 1921; 0, 1915
Number of fair days	5	13	25, 1912; 5, 1893
Number of cloudy days	14	9	18, '01, '28; 2, '10, '23
Number of hours bright sunshine	217.1	237.0	317, 1921; 152, 1915, 1929
Percent of possible hours of bright sunshine	50.6	55.2	
Thunder and Lightning,	1st, 13th, 28th		
Frosts,			

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1932.

REMARKS

The weather during August was marked with a large amount of rain and cloudiness. The total amount of rain for the month was 6.63 inches, the normal being 4.24 inches. The total precipitation since the first of the year is now 30.09 inches, the normal for this period being 29.46 inches. Rain fell on 16 days, the normal number of rainy days for August being 10. There were 217.1 hours of sunshine during the month which is 20 hours less than normal. The mean temperature for the month was 69.3 degrees, the normal being 68.4 degrees. The highest temperature was 98 degrees on the 1st and the lowest was 47 degrees on the 10th. The mean relative humidity for the month was 74.1 per cent. The total wind movement was 3569 miles which is slightly more than usual for August. There were no high wind velocities, the highest recorded being 20 miles per hour on the 23rd and 24th. There was thunder and lightning on the 1st, 13th and 28th.

C. I. GUNNESS,
Meteorologist

F. R. SHAW,
Observer

450-1933-6861

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 537 September, 1933

Meteorological Observations

FOR

SEPTEMBER

1933

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	78	5 P	55	7 A	61.5	69	6.7	w	50	4				
2	81	3 P	55	6 A	68.0	70	9.4	sw	53	7				
3	70	2 P	58	6 A	64.0	85	0.0	se	110	12	2 P	12 P	1.14	
4	74	6 P	67	1 A	70.5	90	0.0	s	121	7	0 A	11 A	1.10	
5	78	2 P	54	12 P	66.0	67	13.0	w	92	15				
6	79	4 P	47	5 A	63.0	78	5.0	se	59	25	5 P	12 P	1.35	
7	78	5 P	49	5 A	63.5	83	6.6	nw	93	9	0 A	2 A	.58	
8	80	4 P	59	6 A	69.5	81	6.7	se	79	11	11 P	12 P	.10	
9	83	4 P	64	1 A	73.5	85	5.1	sw	134	13	0 A	4 A	.04	
10	72	12 M	52	12 P	62.0	62	8.2	nw	204	28				
11	60	1 P	40	6 A	50.0	49	8.0	nw	143	20				
12	69	3 P	35	5 A	52.0	64	9.1	nw	70	9				
13	74	3 P	38	6 A	56.0	66	9.0	nw	77	10				
14	55	3 P	52	7 A	53.5	90	0.0	n	75	6	1 A	8 P	.40	
15	57	1 P	51	6 A	54.0	77	0.0	ne	123	11	0 A	12 P	.35	
16	50	4 P	48	8 A	49.0	90	0.0	nw	191	13	0 A	8 P	6.08	
17	64	6 P	52	0 A	58.0	91	0.0	nw	243	20	8 A	1 P	.10	
18	69	2 P	55	5 A	64.0	68	2.5	w	164	17				
19	71	4 P	54	5 A	62.5	63	7.0	w	183	22				
20	75	3 P	50	12 P	62.5	85	2.4	s	87	17	0 A	12 P	.65	
21	68	1 P	54	6 A	61.0	82	2.0	nw	42	5			T	
22	70	2 P	52	4 A	61.0	77	4.7	nw	112	22			T	
23	74	2 P	56	7 A	65.0	69	7.0	nw	70	6				
24	79	3 P	57	6 A	68.0	76	9.5	s	83	7				
25	81	3 P	61	12 P	71.0	84	4.8	se	66	6	11-30 A	12 M	.01	
26	79	1 P	61	0 A	70.0	83	3.0	se	86	6	4 A	5 P	.06	
27	85	4 P	66	3 A	75.5	81	6.6	se	139	12	4 P	5 P	.35	
28	76	3 P	61	12 P	68.5	73	7.0	e	109	13	11-30 P	12 P	.01	
29	72	2 P	50	12 P	61.0	72	4.3	nw	107	20	0 A	6 A	.02	
30	72	2 P	42	6 A	57.0	65	11.8	se	71	7				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

September, 1933		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.31, 15th	30.45	30.65, 1924
Minimum	29.43, 20th	29.59	29.32, 1900
Mean semi-daily	29.929	30.068	
Range	0.88	.86	1.20, 1904; 0.57, 1910
Air Temperature			
Highest	85, 27th	87.4	97.0, 1895, 1929
Lowest	35, 12th	32.8	24.5, 1914
Mean	62.7	61.6	
Monthly range	50	54.6	
Highest mean daily	75.5, 27th		
Lowest mean daily	49, 16th		
Mean maximum	72.4		
Mean minimum	53.1		
Greatest daily range	36, 13th		
Least daily range	2, 16th		
Precipitation			
Precipitation. In inches	12.34	3.79	8.74, 1907; 0.52, 1914
Snow, in inches			
Maximum precipitation in 24 hrs.	6.32, 15th and 16th		
Number of days on which .01 or more inches of rain fell	16	9	15, 1918; 3, 1903
Wind (miles)			
Total movement	3,236	3,252	4,686, 1896; 1,414, 1894
Greatest daily movement	243, 17th		
Least daily movement	42, 21st		
Mean hourly velocity	4.5	4.5	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	28, 10th	22	39, 1915
Wind (direction)			
Prevailing direction	w	wsw	
North, days	1		
Northeast, days	1		
East, days	1		
Southeast, days	7		
South, days	3		
Southwest, days	2		
West, days	4		
Northwest, days	11		
Weather			
Mean relative humidity, per cent	75.8	80.0	89, 1927; 68.0, 1932
Mean cloudiness, per cent	56.8	48.7	65, 1889; 27, 1908, 1914
Number of clear days	6	9	19, 1932; 2, 1907, 1928
Number of fair days	14	11	19, 1908; 3, 1889
Number of cloudy days	10	10	19, '89, '07; 4, '08, '16
Number of hours bright sunshine	159.4	202.5	255, 1916; 110, 1907
Percent of possible hours of bright sunshine	42.7	54.4	
Thunder and Lightning,	20th, 27th		
Frosts,	12th	19	Aug. 22, '94, '95; Oct. 13, '09

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1932.

REMARKS

The outstanding feature of the weather during September was the unusually large rainfall. A total of 12.34 inches of rain fell during the month. This is the greatest rainfall which has been recorded in Amherst in any one month since 1836 except for that of July 1897, when 14.51 inches fell. During that month 8 inches fell in one storm extending over a 44-hour period. During the past month 6.75 inches fell from the 14th to 17th inclusive. A total of 6.32 inches fell during an 18-hour period from 9:30 P. M. on the 15th to 3:30 P. M. on the 16th. This is the heaviest rain which has ever been recorded at this station for such a period. An inch of rain fell during half an hour about 10 A. M. on the 16th. It may be of interest to recall that the rain causing the flood in November 1927 gave a total of 5.63 inches during the three days November 2, 3, and 4. The total precipitation for the year to the end of September is 42.43 inches, the normal for this period being 33.25 inches. There were 159.4 hours of bright sunshine during the month, the normal being 202.5 hours. The mean temperature for the month was 62.7 hours, which is 1.1 degrees higher than normal. The highest temperature was 85 degrees on the 27th and the lowest 35 degrees on the 12th with a light frost. The normal date for the first frost is September 19. There were no high winds during the month. The total wind movement was 3236 miles which is practically the normal amount.

C. I. GUNNESS,
Meteorologist

HERBERT JENKINS,
Observer

450-1933-6861

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 538 October, 1933

Meteorological Observations

FOR

OCTOBER
1933

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	79	1 P	53	2 A	66.0	70	4.6	se	177	18	10 P	12 P	.09	
2	71	2 P	46	12 P	58.5	60	11.7	se	119	13				
3	65	3 P	40	6 A	52.5	79	11.7	nw	78	20				
4	67	2 P	35	7 A	51.0	70	8.2	nw	91	13				
5	55	11 A	47	6 A	51.0	82	0.0	ne	162	12	11-30 P	12 P	.76	
6	69	2 P	47	5 A	58.0	71	9.1	nw	206	22	0 A	1 A	.07	
7	58	3 P	49	8 A	53.5	72	0.1	nw	205	15				
8	70	2 P	43	7 A	56.5	70	11.5	nw	88	8	0 A	4 A	.02	
9	61	3 P	52	0 A	56.5	87	0.0	nw	78	12	7 A	10 P	.03	
10	65	2 P	46	7 A	55.5	62	8.8	w	127	18				
11	66	4 P	47	7 A	56.5	64	4.1	sw	96	7				
12	73	4 P	44	6 A	58.5	59	4.8	se	160	17			T	
13	58	2 P	41	12 P	49.5	60	4.0	nw	162	15				
14	55	2 P	33	12 P	44.0	70	11.1	nw	120	15				
15	68	3 P	30	7 A	49.0	62	11.1	se	75	8				
16	70	2 P	35	6 A	52.5	71	8.9	se	114	12				
17	70	12 M	42	12 P	56.0	75	0.2	se	161	18	12-30 P	4-30 P	1.02	
18	58	1 P	38	5 A	48.0	67	7.0	w	94	13	5-30 P	12 P	.03	
19	55	4 P	32	7 A	43.5	57	11.0	se	97	12	0 A	4-30 A	.02	
20	64	3 P	38	12 P	51.0	63	4.0	se	207	20	3 A	7 A	.06	
21	50	2 P	29	7 A	39.5	65	4.7	w	67	7				
22	65	2 P	42	1 A	53.5	87	0.0	s	94	20			T	
23	58	2 P	38	12 P	48.0	65	3.0	nw	178	17	1 A	8-30 A	.81	
24	47	12 M	37	5 A	42.0	75	0.0	nw	105	15	12-30 P	12 P	.77	
25	42	6 P	26	12 P	34.0	54	0.5	nw	355	32	0 A	4-30 A	.07	
26	47	4 P	23	7 A	35.0	56	10.6	nw	135	15				
27	44	5 P	26	5 A	35.0	75	0.1	nw	37	2	5-30 P	12 P	.09	
28	49	1 P	27	12 P	38.0	55	5.8	nw	201	24	0 A	7-30 A	.06	
29	51	2 P	27	6 A	39.0	61	7.9	nw	125	10				
30	50	2 P	33	12 P	41.5	66	10.4	nw	87	12				
31	64	4 P	30	6 A	47.0	77	4.5	sw	47	8				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

October, 1933		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.65, 21st	30.53	30.68, 1929
Minimum	29.54, 25th	29.42	29.00, 1926
Mean semi-daily	30.110	30.059	
Range	1.11	1.11	1.47, 1926; 0.76, 1899
Air Temperature			
Highest	79, 1st	79.7	90.5, 1908
Lowest	23, 26th	23.4	18.0, 1904
Mean	49.0	50.4	
Monthly range	56	56.3	
Highest mean daily	66, 1st		
Lowest mean daily	34, 25th		
Mean maximum	60.1		
Mean minimum	37.9		
Greatest daily range	38, 15th		
Least daily range	8, 5th		
Precipitation			
Precipitation. In inches	3.90	3.35	8.81, 1911; 0.01, 1924
Snow, in inches			
Maximum precipitation in 24 hrs.	1.02, 17th		
Number of days on which .01 or more inches of rain fell	14	8	15, 1913; 1, 1897, 1924
Wind (miles)			
Total movement	4,048	4,023	5,467, 1910; 2,540, 1894
Greatest daily movement	355, 25th		
Least daily movement	37, 27th		
Mean hourly velocity	5.4	5.4	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	32, 25th	27	35, 1906, 1916, 1925, 1929
Wind (direction)			
Prevailing direction	nw	w	
North, days	0		
Northeast, days	1		
East, days	0		
Southeast, days	8		
South, days	1		
Southwest, days	2		
West, days	3		
Northwest, days	16		
Weather			
Mean relative humidity, per cent	68.0	76.9	86.7, 1920; 64, 1929
Mean cloudiness, per cent	51.0	47.6	67, 1932; 18, 1924
Number of clear days	13	8	15, 1931; 1, 1911
Number of fair days	9	11	17, '24; 5, '94, '96, '98, '03, '17
Number of cloudy days	9	12	19, 1896; 3, 1924
Number of hours bright sunshine	179.4	171.0	232, 1923; 91, 1913
Percent of possible hours of bright sunshine	53.0	50.1	
Thunder and Lightning,	1st		
Frosts, 4th, 14th, 15th, 16th, 19th, 21st, 25th, 26th, 27th, 28th, 29th, 30th, 31st			

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1932.

REMARKS

The weather during October was very nearly normal in all respects. The total rainfall during the month was 3.90 inches compared with a normal of 3.35 inches. The total rainfall since January 1 is now 46.33 inches, the normal being 36 60 inches for this period. The mean temperature for the month was 49 degrees, the normal being 50.4 degrees. The highest temperature was 79 degrees on the 1st and the lowest 23 degrees on the 26th. These are extreme temperatures to be expected during the month of October. There were 179.4 hours of bright sunshine for the month, the normal being 171.0 hours. The total wind movement was 4048 miles, which is only 15 miles more than normal and the highest wind velocity was 32 miles per hour on the 25th.

C. I. GUNNESS,
Meteorologist

HERBERT JENKINS,
Observer

450-1933-6861

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 539 November, 1933

Meteorological Observations

FOR

NOVEMBER
1933

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	63	4 P	36	6 A	49.5	65	10.3	nw	87	8				
2	63	4 P	30	7 A	46.5	66	3.6	se	63	8				
3	62	2 P	42	12 P	52.0	78	0.0	se	147	18	7 P	8 P	.01	
4	42	12 M	25	12 P	33.5	60	10.2	n	289	20				
5	40	3 P	22	7 A	31.0	43	6.0	n	158	12				
6	33	2 P	27	5 A	30.0	89	0.0	nw	102	9	1 A	8 A	.30	2.0
7	40	3 P	32	0 A	36.0	79	0.0	nw	75	8				
8	43	1 P	25	12 P	34.0	57	2.0	nw	223	32				
9	40	11 A	25	6 A	32.5	70	1.7	se	146	12				T
10	34	2 P	21	12 P	27.5	65	0.0	nw	174	25				
11	35	2 P	20	7 A	27.5	79	0.2	sw	154	18	7 P	12 P	.35	5.0
12	41	3 P	18	12 P	29.5	75	6.5	nw	123	18				
13	48	8 P	18	0 A	33.0	80	2.5	nw	59	6	6-30 P	12 P	.17	
14	42	0 A	29	12 P	35.5	77	0.0	w	140	25	0 A	8 A	.12	0.25
15	29	0 A	13	12 P	21.0	45	2.4	w	320	25				
16	29	2 P	9	7 A	19.0	39	6.3	sw	141	12				
17	32	5 P	18	7 A	25.0	54	0.0	s	172	18	8 P	11 P	.08	0.50
18	37	1 P	26	0 A	31.5	77	0.0	se	126	22				
19	35	0 A	25	8 A	30.0	50	4.7	nw	232	18				
20	42	12 M	22	12 P	32.0	58	5.3	nw	186	25				T
21	35	12 P	15	7 A	25.0	64	0.8	nw	55	4				
22	55	12 M	35	0 A	45.0	72	0.3	nw	126	18	0 A	1 A	.01	
23	42	2 P	30	12 P	36.0	62	4.7	nw	128	12				
24	37	2 P	20	7 A	28.5	70	0.0	s	107	11				
25	42	3 P	35	8 A	38.5	63	1.1	w	122	10				
26	55	3 P	34	2 A	44.5	84	2.5	se	98	10	8 P	9-30 P	.01	T
27	48	0 A	18	12 P	33.0	54	0.0	nw	295	32	0 A	2 A	.03	
28	47	1 P	18	0 A	32.5	54	0.3	w	142	25				
29	49	2 P	33	7 A	41.0	65	4.5	se	139	10	8 P	11 P	.11	
30	66	2 P	42	11 P	54.0	58	6.0	w	294	32				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

November, 1933		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.47, 17th	30.58	30.87, 1932
Minimum	29.11, 27th	29.34	28.73, 1904
Mean semi-daily	29.965	30.046	
Range	1.36	1.29	1.84, 1904; 0.98, 1890
Air Temperature			
Highest	66, 30th	65.3	75.0, 1924
Lowest	9 16th	13.8	3.5, 1891
Mean	34.5	38.6	
Monthly range	57	51.4	
Highest mean daily	54,30th		
Lowest mean daily	19, 16th		
Mean maximum	43.5		
Mean minimum	25.4		
Greatest daily range	33, 2d		
Least daily range	6, 6th		
Precipitation			
Precipitation. In inches	1.19	3.45	8.64, 1927; 0.63, 1917
Snow, in inches	7.75	2.05	9,24; t, 89, 93, 03, 12, 18,19,22, 27, 32
Maximum precipitation in 24 hrs.	.35, 11th		
Number of days on which .01 or more inches of rain fell	10	9	22, 1921; 2, 1904
Wind (miles)			
Total movement	4,624	4,564	5,978, 1906; 2,589, 1889
Greatest daily movement	320, 15th		
Least daily movement	55, 21st		
Mean hourly velocity	6.4	6.3	
Maximum velocity for 5 min... (corrected to conform to 3 cup anemometer)	32, 8th 27th 30th	29	40, 1915
Wind (direction)			
Prevailing direction	w	w	
North, days	2		
Northeast, days	0		
East, days	0		
Southeast, days	6		
South, days	2		
Southwest, days	2		
West, days	5		
Northwest, days	13		
Weather			
Mean relative humidity, per cent	65.0	76.3	85.9, 1907; 63.3, 1932
Mean cloudiness, per cent	61.0	53.5	72, 1900, 1927; 34, 1917
Number of clear days	2	6	15, 1903; 1, 1900, 1911, 1927
Number of fair days	9	9	16, 1912; 4, 1889, 1930, 1932
Number of cloudy days	19	15	24, 1927; 9, 1890, 1905, 1917
Number of hours bright sunshine	81.9	121.0	182, 1903; 66, 1927
Percent of possible hours of bright sunshine	28.0	41.3	
Thunder and Lightning,			
Frosts,			

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1932.

REMARKS

The weather during November was colder than usual with very little sunshine and a very light rainfall. The mean temperature for the month was 34.5 degrees, while the normal for the month is 38.6 degrees. The highest temperature was 66 degrees on the last day of the month, which is very high for this date. The lowest temperature was 9 degrees on the 16th, which is the lowest temperature recorded at that early date in November. The precipitation during the month was only 1.19 inches, the normal being 3.45 inches. The total precipitation since January 1 is now 47.52 inches, while the normal for this period is 40.52 inches. The snowfall during the month was 7.75 inches. The average snowfall during November is 2.05 inches. Five inches of snow fell on the 11th, which is the heaviest snowfall ever recorded at that early date. There were only 81.9 hours of bright sunshine. The normal for the month is 121 hours. The total wind movement during the month was 4624 miles with the highest velocity 32 miles per hour. This occurred on the 8th, 27th and 30th.

C. I. GUNNESS,
Meteorologist

HERBERT JENKINS,
Observer

450-1933-6861

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 540 December, 1933

Meteorological Observations

FOR

DECEMBER

1933

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	46	0 A	18	12 P	32.0	58	2.1	w	496	39				
2	43	3 P	18	3 A	30.5	72	4.4	s	123	18				
3	38	2 P	29	1 A	33.5	75	0.0	se	74	7	3 A	12 P	.05	
4	36	7 A	28	12 P	32.0	78	0.0	n	207	17	0 A	8 A	.23	
5	38	12 P	27	1 A	32.5	75	0.0	s	83	8				
6	43	1 P	32	12 P	37.5	80	0.0	s	163	18	9 A	12 M	.10	
7	37	1 P	26	7 A	31.5	67	2.1	se	93	7				
8	55	12 P	26	1 A	40.5	76	0.0	s	51	5				
9	37	0 A	12	12 P	24.5	69	0.0	nw	199	20				
10	16	1 P	8	8 A	12.0	75	4.7	nw	314	13				
11	26	4 P	6	5 A	16.0	62	0.0	s	184	43				
12	17	12 M	7	8 A	12.0	43	2.6	nw	443	28				4.0
13	21	3 P	9	0 A	15.0	76	0.0	s	80	5	10-30 A	8 P	.33	
14	27	2 P	2	12 P	14.5	65	9.1	nw	97	10				
15	16	8 P	2	5 A	9.0	72	0.0	nw	79	4	2 P	12 P	.15	
16	39	3 P	15	0 A	27.0	80	1.5	s	62	7	0 A	2-30 A	.14	
17	35	12 P	13	6 A	24.0	89	0.0	se	37	5	4 P	12 P	.37	
18	44	6 A	27	12 P	35.5	46	4.6	nw	290	39				
19	44	2 P	22	7 A	33.0	55	5.8	se	109	10				
20	36	7 P	22	7 A	29.0	78	0.0	ne	77	7	1-30 P	12 P	.62	3.0
21	34	1 P	25	2 A	29.5	74	0.0	w	214	28	0 A	2 A	.20	
22	36	2 P	30	12 P	33.0	60	0.0	sw	200	32				
23	30	2 P	20	6 A	25.0	56	2.8	se	136	17				
24	34	2 P	28	7 A	31.0	89	0.0	se	49	4				
25	38	4 A	20	12 P	29.0	47	0.0	w	302	28				
26	20	0 A	12	12 P	16.0	72	0.0	nw	176	17	9 A	8 P	.62	9.0
27	13	4 A	0	12 P	6.5	55	9.1	w	352	40				
28	22	2 P	–8	5 A	7.0	63	5.2	w	136	25				
29	4	0 A	–17	8 A	–6.5	51	9.1	nw	220	9				
30	–3	12 P	–20	7-30 A	–11.5	60	0.0	nw	64	4				T
31	22	12 P	–3	0 A	9.5	72	0.0	nw	40	3				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

December, 1933		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.87, 29th	30.65	30.96, 1889
Minimum	29.49, 21st	29.25	28.85, 1915
Mean semi-daily	30.097	30.056	
Range	1.38	1.40	1.78, 1895; 1.01, 1892
Air Temperature			
Highest	55, 8th	54.5	65.5, 1908
Lowest	–20, 30th	–2.3	–22.5, 1917
Mean	22.3	27.3	
Monthly range	75	56.8	
Highest mean daily	40.5, 8th		
Lowest mean daily	–11.5, 30th		
Mean maximum	30.5		
Mean minimum	14.0		
Greatest daily range	30, 28th		
Least daily range	6, 22d, 24th		
Precipitation			
Precipitation. In inches	2.81	3.47	7.77, 1901; 0.87, 1896
Snow, in inches	16.00	8.99	26.50, '02; t, 1891
Maximum precipitation in 24 hrs.	.82, 20th, 21st		
Number of days on which .01 or more inches of rain fell	10	9	17, 1902; 4, 1892
Wind (miles)			
Total movement	5,150	4,726	6,694, 1925; 3,239, 1918
Greatest daily movement	496, 1st		
Least daily movement	37, 13th		
Mean hourly velocity	6.9	6.4	
Maximum velocity for 5 min. (corrected to conform to 3 cup anemometer)	40, 27th	29	41, 1928
Wind (direction)			
Prevailing direction	wsw	w	
North, days	1		
Northeast, days	1		
East, days	0		
Southeast, days	6		
South, days	7		
Southwest, days	1		
West, days	5		
Northwest, days	10		
Weather			
Mean relative humidity, per cent	67.4	77.2	87.1, 1919; 63, 1931
Mean cloudiness, per cent	66.0	53.4	71, 1929; 39, 1919
Number of clear days	2	8	15, 1890; 2, 1922
Number of fair days	6	10	16, 1909; 4, 1889, 1930, 1931
Number of cloudy days	23	13	19, 1911, 1922; 7, 1909, 1923
Number of hours bright sunshine	63.1	130.7	172, 1896; 86, 1922
Percent of possible hours of bright sunshine	22.3	46.0	
Thunder and Lightning,			
Frosts,			

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1932

ANNUAL SUMMARY

Annual, 1933		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.87, Dec. 29	30.81	31.05, 1920
Minimum	28.99, Mar. 8	28.95	28.47, 1914
Mean semi-daily	29.985	30.016	
Range	1.38	1.86	2.33, 1913; 1.55, 1923
Air Temperature			
Highest	98, Aug. 1	95.8	104, 1911
Lowest	-20, Dec. 30	-12.1	-26.0, 1904
Mean	48.2	47.2	49.6, 1913; 44.0, 1904
Range	118	108.0	
Highest mean daily	87.5, July 30		
Lowest mean daily	-11.5, Dec. 30		
Mean maximum	58.0	57.8	
Mean minimum	38.4	36.5	
Greatest daily range	47, Feb. 8		
Least daily range	2, Sept. 16		
Precipitation			
Precipitation. In inches	50.33	43.49	57.05, 1897; 30.68, 1908
Snow, in inches	63.75	48.38	78.00, 1920; 24.50, 1919
Maximum precipitation in 24 hrs.	6.32, Sept. 15, 16		
Number of days on which .01 or more inches of rain fell	134	123	144, 1902; 96, 1924
Wind (miles)			
Total movement	56,704	52,321	63,571, 1908; 36,257, 1894
Greatest daily movement	552, Jan. 29		
Least daily movement	37, Oct. 27, Dec. 13		
Mean hourly velocity	6.5	6.0	
Maximum velocity for 5 min.,	45, Feb. 21, Mar. 9	35	48, 1932
(corrected to conform to 3 cup anemometer)			
Wind (direction)			
Prevailing direction	w	w	
North, days	19		
Northeast, days	12		
East, days	10		
Southeast, days	93		
South, days	25		
Southwest, days	21		
West, days	58		
Northwest, days	127		
Weather			
Mean relative humidity, per cent	66.0	75.8	82.9, 1927; 64.9, 1932
Mean cloudiness, per cent	59.0	50.8	60, '98, '01, '02; 41, '08, '24
Number of clear days	126	109	150, 1932; 59, 1927
Number of fair days	105	128	182, 1912; 83, 1894
Number of cloudy days	134	128	179, '01, '02; 71, 1910
Number of hours bright sunshine	2203.5	2,356	2,838, 1924; 1,864, 1902
Percent of possible hours of bright sunshine	49.4	53.0	
Last Frost	June 2	M'y 12	Apr. 23, 1904; June 8, 1932
First Frost	Sept. 12	S't 19	Aug. 22, '94, '95; Oct. 13, '09
Last Snow	April 26	Apr 14	Mar. 14, '10; May 5, '91, '17
First Snow	Nov. 6	Nov 5	Oct. 10, '25; Nov. 27, 1931

NOTE—The first column in the above summary gives observations made during the year. The second and third columns give the averages and extremes observed from 1889 to 1932.

450-1933-6861

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 541 January, 1934

Meteorological Observations

FOR

JANUARY

1934

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	43	2 P	22	0 A	32.5	83	0.0	se	121	18	8-30 P	12 P	.02	
2	30	0 A	8	12 P	19.0	58	1.0	nw	286	20				
3	19	8 P	3	6 A	11.0	55	3.0	nw	72	8				
4	29	3 P	12	8 A	20.5	71	3.0	nw	57	7				
5	33	12 P	23	6 A	28.0	87	0.0	nw	74	8	4 P	2 P	.58	3.0
6	34	3 P	31	0 A	32.5	89	1.0	s	32	3				
7	35	2 P	30	0 A	32.5	86	0.0	w	41	6	4-30 A	12 P	.96	
8	36	11 A	33	0 A	34.5	74	1.0	nw	160	22	0 A	8 A	.07	
9	35	2 P	29	12 P	32.0	65	3.2	s	66	9				
10	40	2 P	27	8 A	33.5	77	2.5	sw	62	8				T
11	33	11 A	29	12 P	31.0	61	1.3	sw	192	25				
12	33	2 P	28	8 A	30.5	74	2.2	nw	55	8				
13	36	8 P	28	2 A	32.0	83	0.0	nw	83	15	7 A	8 P	.32	½
14	35	12 M	20	12 P	27.5	66	0.1	sw	190	15				T
15	28	1 P	13	11 P	20.5	59	5.0	nw	183	12				T
16	35	3 P	14	0 A	24.5	60	5.8	ne	56	15				
17	26	0 A	8	12 P	17.0	48	9.4	nw	320	35				
18	19	1 P	4	8 A	11.5	49	9.4	nw	150	13				
19	35	12 M	6	0 A	20.5	50	4.1	s	214	39				
20	23	2 P	14	12 P	18.5	52	4.1	nw	112	8				
21	18	4 P	10	12 P	14.0	59	4.3	nw	126	15				
22	32	3 P	11	0 A	21.5	59	6.3	w	78	10				T
23	41	12 M	30	12 P	35.5	75	0.0	w	151	39	2 A	1 P	1.37	T
24	27	4 P	19	8 A	23.0	49	9.6	w	319	28				
25	42	5 P	18	8 A	30.0	62	4.5	nw	77	28				
26	36	0 A	18	12 P	27.0	61	1.6	s	174	25				T
27	34	12 P	16	7 A	25.0	62	0.0	se	81	16	12 M	3-30 P	.05	0.5
28	40	7 P	28	12 P	34.0	67	0.0	se	164	35	6 A	7-30 P	.13	
29	28	0 A	–5	8 A	11.5	53	5.4	nw	514	40				
30	7	1 P	–4	3 A	1.5	45	6.6	w	369	32				
31	25	12 P	–1	5 A	12.0	54	1.5	se	179	15				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

January, 1934	Normal	Extremes
Barometer (Readings reduced to sea level)		
Maximum 30.69, 4th	30.71	31.00, 1927
Minimum 29.04, 28th	29.18	28.55, 1913
Mean semi-daily 30.083	30.07	
Range 1.65	1.54	2.18, 1913; 0.97, 1896
Air Temperature		
Highest 43, 1st	50.4	66.0, 1932
Lowest ....–5.0, 29th	–7.4	–26.0, 1904
Mean 24	23.8	
Monthly range............. 48	58.2	
Highest mean daily 35.5, 23rd		
Lowest mean daily 1.5, 30th		
Mean maximum 31.2		
Mean minimum................... 16.8		
Greatest daily range 33, 29th		
Least daily range 3, 6th, 8th		
Precipitation		
Precipitation. In inches 3.50	3.42	7.15, 1898; 1.07, 1896
Snow, in inches 4.0	13	33, 1898, 1923; 1.75, 1911
Maximum precipitation in 24 hrs. 1.37, 23rd		
Number of days on which .01 or more inches of rain fell........... 8	11	18, 1923; 4, 1889
Wind (miles)		
Total movement 4,758	5,068	7,770, 1908; 2,896, 1895
Greatest daily movement 514, 29th		
Least daily movement, ...32, 6th		
Mean hourly velocity 6.4	6.8	
Maximum velocity for 5 min., 40, 29th 21, Mar. 9 (corrected to conform to 3 cup anemometer)	30	41, 1911
Wind (direction)		
Prevailing direction .... w	wnw	
North, days 0		
Northeast, days 1		
East, days 0		
Southeast, days..................... 4		
South, days......................... 4		
Southwest, days 3		
West, days.......................... 5		
Northwest, days.................. 14		
Weather		
Mean relative humidity, per cent.. 64.3	78.2	87.7, 1920; 63.4, 1932, 1933
Mean cloudiness, per cent 60.5	54	78, 1932; 37, 1908
Number of clear days................ 5	8	16, 1922; 2, 1914
Number of fair days... 10	10	18, 1890, 1926; 3, 1916
Number of cloudy days 16	13	22, 1923, 1931; 4, 1920
Number of hours bright sunshine ..96.0	140	214, 1920; 74.2, 1932
Percent of possible hours of bright sunshine..................... 32	47.6	
Thunder and Lightning............		
Frosts..........................		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1933.

REMARKS

The weather during January has been very nearly normal except for lack of sunshine. There were only 96 hours of bright sunshine recorded, while the normal amount of sunshine for this month is 140 hours. The mean temperature for the month was 24 degrees, which is two-tenth of a degree higher than normal. The highest temperature during the month was 43 degrees on the 1st and the lowest −5.0 degrees on the 29th. The domestic heating load for the season to the end of January is now 4026 degree-days, whereas the normal number of degree-days for this period is 3773, giving an excess of about 7%.

The total precipitation for the month was 3.5 inches and the normal for January is 3.42 inches. Four inches of snow fell during the month compared with a normal snowfall of 13 inches. The total wind movement for the month was 4758 miles, the normal being 5068 miles. The highest wind velocity recorded for a 5-minute period was 40 miles per hour on the 29th. The prevailing direction was west.

C. I. Gunness, Meteorologist

Herbert Jenkins, Observer

450-1933-6861

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series **Bulletin No. 542** **February, 1934**

Meteorological Observations

FOR

FEBRUARY

1934

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			*Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time	Degrees	Time	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	29	9 A	21	0 A	25.0	64	0.0	se	202	12	11 A	12 P	.37	4.0
2	31	0 A	6	12 P	18.5	52	6.7	nw	258	20				
3	18	5 P	-5	8 A	6.5	45	10.0	nw	184	22				
4	15	4 P	-3	12 P	6.0	71	0.9	nw	39	2	9 A	1 P	.08	2.0
5	20	3 P	-10	7 A	5.0	70	7.0	nw	88	13				
6	16	3 P	-7	8 A	4.5	55	10.2	nw	165	18				
7	18	3 P	-16	5 A	1.0	60	4.8	sw	68	13				T
8	4	0 A	14	12 P	-5.0	47	10.4	nw	244	22				
9	2	3 P	-22	7-30 A	-10.0	48	10.4	nw	218	22				
10	23	4 P	-9	7 A	7.0	42	10.3	sw	67	10				
11	34	4 P	3	7 A	18.5	49	4.3	s	113	10				
12	35	3 P	22	8 A	28.5	60	10.4	se	119	14				
13	26	11 A	-2	12 P	12.0	65	0.5	nw	225	39	6 A	7 A	.03	½
14	18	5 P	-5	7 A	6.5	41	10.5	nw	226	22				
15	35	3 P	10	0 A	22.5	64	5.0	sw	215	39				
16	13	3 P	1	7 A	7.0	50	8.1	nw	262	22				
17	24	5 P	4	3 A	14.0	48	10.8	nw	171	15				
18	35	3 P	0	7 A	17.5	61	10.8	sw	61	5				
19	36	3 P	17	5 A	26.5	70	3.5	se	127	15	8 P	12 P	.26	2½
20	25	0 A	6	12 P	15.5	74	1.9	nw	454	48	0 A	1 P	1.16	8½
21	31	3 P	-1	5 A	15.0	49	10.9	sw	135	20				
22	37	4 P	10	7 A	23.5	77	3.2	se	81	22	5 P	12 P	.24	2.0
23	33	6 A	5	12 P	19.0	53	10.9	w	334	45	0 A	2 A	.10	½
24	8	3 P	0	8 A	4.0	41	10.9	w	405	25				
25	18	3 P	-4	7 A	7.0	61	7.0	nw	107	7	4 P	12 P	.11	1.0
26	15	12 M	10	0 A	12.5	79	0.0	nw	243	17	0 A	8 P	.47	5.0
27	15	4 P	2	7 A	8.5	64	11.1	nw	240	20				
28	28	2 P	-14	7 A	7.0	61	11.1	se	92	8				

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*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

Febuary. 1934		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.83, 28th	30.63	31.05, 1920
Minimum	29.11, 13th	29.20	28.56, 1895
Mean semi-daily	30.116	30.03	
Range	1.72	1.43	1.89, 1900, 1908; .88, 1913, 1931
Air Temperature			
Highest	37, 22nd	50.3	65.0, 1930
Lowest	-22.0, 9th	-7.9	-22.5, 1918
Mean	11.6	23.5	
Monthly range	59	58.2	
Highest mean daily	28.5, 12th		
Lowest mean daily	-10, 9th		
Mean maximum	23		
Mean minimum	0.2		
Greatest daily range	42, 28th		
Least daily range	5, 26th		
Precipitation			
Precipitation. In inches	2.82	3.35	8.12, 1900; 0.62, 1901
Snow, in inches	26	14.27	48.75 1893; 2.5, 1912
Maximum precipitation in 24 hrs.	1.42, 19th, 20th		
Number of days on which .01 or more inches of rain fell	9	10	15, 1893, 1920; 4, 1901
Wind (miles)			
Total movement	5,143	4,833	6,445, 1896; 3,438, 1892
Greatest daily movement	454, 20th		
Least daily movement,	39, 4th		
Mean hourly velocity	7.7	7.1	
Maximum velocity for 5 min., (corrected to conform to 3 cup anemometer)	48, 20th	29	45, 1933
Wind (direction)			
Prevailing direction	w	wnw	
North, days	0		
Northeast, days	0		
East, days	0		
Southeast, days	5		
South, days	1		
Southwest, days	5		
West, days	2		
Northwest, days	15		
Weather			
Mean relative humidity, per cent	58.0	77.9	90, 1889, 66.8, 1902
Mean cloudiness, per cent	42.5	50.5	66, 1890, 1927; 31, 1905
Number of clear days	15	10	17, 1924; 2, 1927
Number of fair days	7	8	16, 1920; 3, 1890
Number of cloudy days	6	10	16, 1894, 2, 1920
Number of hours bright sunshine	191.0	160	221, 1924; 110, 1927
Percent of possible hours of bright sunshine	64.6	54.1	
Thunder and Lightning			
Frosts			

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1933.

REMARKS

The weather during the month of February was marked with continued low temperature. The mean temperature for the month was 11.6 degrees, the normal mean being 23.5 degrees. This is the coldest month on record at Amherst. The nearest approach to this low temperature is found in the records of Prof. Snell of Amherst College, when he recorded 15.2 degrees in 1885. His temperature records run back to 1837. The lowest temperature was 22 degrees below zero on the 9th. This has been exceeded only once previously in February, when a temperature of 22.5 degrees below zero was recorded in 1918. The practice of recording maximum and minimum temperatures to one-half degrees was discontinued in 1928. The temperature fell to zero or below on 15 days. The nearest approach to this number was in 1918, when there were 10 days of zero weather. Considering the weather during the three winter months, December, January and February, it is interesting to note that the mean temperature for this period for the current year is 19.5 degrees, the normal being 24.9 degrees. This has been exceeded only once since this station was established in 1889. That was during the winter of 1917-18 when the mean for the three months was 16.8 degrees. The temperature fell to zero or below on 23 days during the present winter, while there were 26 days of zero weather in 1917-18. The domestic heating load is now 5520 degree-days since September 15, whereas the normal for this period is 4935 degree-days or an excess of 12 per cent .

The precipitation during the month was 2.82 inches, all in the form of snow. The normal precipitation for February is 3.35 inches. The snowfall during the month was 26 inches, the normal being 14.25 inches. While the snowfall was but slightly higher than usual, the blizzard on the 20th caused great inconvenience to traffic on account of drifting. The total wind movement on the 20th was 454 miles with a maximum of 48 miles per hour. The total snowfall during the present winter is 53.75 inches, the normal for these months being 38.31 inches. The ground was covered with snow throughout the month with an estimated depth of 13 inches at the end of the month. There were 191 hours of bright sunshine during the month, the normal for February being 160 hours.

Dr. J. K. Shaw of the Department of Pomology gives the following statement:

> "The most severe winter since 1918 has killed practically all the peach fruit buds in the state. There is probably some injury to peach trees but it may be expected to be severe only with weak growing trees. There is no reason to fear great damage to apple trees in orchards that have been well cared for. Some damage may be expected to raspberries and any young sweet cherry trees are likely to show injury. There may be some damage to plum buds especially the Japanese varieties. It is unlikely that there will be serious losses to the industry excepting those arising through the loss of 1934 peach crop."

C. I. GUNNESS, Meteorologist

HERBERT JENKINS, Observer.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 543 March, 1934

Meteorological Observations

FOR

MARCH

1934

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	35	4 P	5	7 A	20.0	61	11.0	se	71	11				
2	45	3 P	10	7 A	22.5	65	6.1	se	67	12	11 P	12 P	.03	
3	49	3 P	34	2 A	41.5	76	4.0	w	153	15	0 A	12 P	.40	
4	40	3 P	35	2 A	37.5	85	0.0	s	54	11	0 A	12 P	.28	
5	61	2 P	33	12 P	47.0	73	4.8	s	86	11	0 A	8 A	.47	
6	40	4 P	32	2 A	36.0	46	6.2	w	216	20				T
7	37	10 A	31	11 P	34.0	58	2.0	w	182	14				
8	34	2 P	21	12 P	27.5	58	1.5	w	119	22	4 P	8 P	.03	.25
9	29	4 P	11	7 A	20.0	47	7.8	w	253	18				
10	20	3 P	11	3 A	15.5	65	0.0	se	130	12	2 P	12 P	.15	.50
11	33	2 P	16	7 A	24.5	70	5.6	se	240	15	0 A	11 A	.24	1.50
12	30	5 P	10	6 A	20.0	53	11.2	se	135	14				
13	40	4 P	14	1 A	27.0	63	1.1	sw	237	17			T	
14	46	11 A	25	12 P	35.5	51	3.0	w	240	20	11-30A	4-30 P	.06	.75
15	40	4 P	19	7 A	29.5	51	11.0	w	149	14				
16	47	5 P	20	6 A	33.5	68	3.6	w	128	12				
17	51	3 P	29	7 A	40.0	58	12.0	nw	144	11				
18	59	12 M	25	12 P	42.0	56	6.3	nw	190	25			T	T
19	32	4 P	16	7 A	24.0	52	12.0	w	196	18				
20	40	2 P	22	7 A	31.0	58	12.0	se	176	18				
21	41	2 P	21	7 A	31.0	50	8.0	se	195	20				
22	35	0 A	10	12 P	22.5	48	12.0	nw	311	32				
23	29	3 P	6	7 A	17.5	46	8.1	se	266	18				
24	30	12 M	19	7 A	24.5	61	0.7	nw	121	10	2 P	8 P	.15	2.50
25	37	5 P	15	6 A	26.0	48	12.3	nw	57	9				
26	37	3 P	21	6 A	29.0	73	6.7	s	109	14	4 P	12 P	.32	
27	55	4 P	31	0 A	43.0	88	0.0	s	124	20	0 A	12 P	.24	
28	43	0 A	32	12 P	37.5	76	0.0	n	241	25	0 A	8 A	.60	
29	59	5 P	26	6 A	42.5	53	12.5	n	104	10				
30	47	3 P	27	5 A	37.0	51	10.0	nw	127	13				
31	47	2 P	29	7 A	38.0	72	2.2	e	158	17	3 P	12 P	.63	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

March, 1934		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.68, 1st	30.60	30.96, 1904
Minimum	29.47, 5th	29.26	28.47, 1914
Mean semi-daily	30.142	30.02	
Range	1.21	1.35	2.10, 1914; 0.85, 1915
Air Temperature			
Highest	61, 5th	63.9	79.5, 1907, 1921
Lowest	5, 1st	5.7	−7.5, 1906
Mean	30.9	34.2	
Monthly range	56	58.2	
Highest mean daily	47, 5th		
Lowest mean daily	15.5, 10th		
Mean maximum	40.9		
Mean minimum	21.2		
Greatest daily range	35, 2nd		
Least daily range	5, 4th		
Precipitation			
Precipitation. In inches	3.60	3.68	7.13, 1899; 0.12, 1915
Snow, in inches	5.50	8.11	27, 1899; 0, 1921
Maximum precipitation in 24 hrs.	.63, 31st		
Number of days on which .01 or more inches of rain fell	13	11	17, 1890, 1913; 3, 1915
Wind (miles)			
Total movement	4,979	5,738	7,628, 1932; 3,006, 1905
Greatest daily movement	311, 22nd		
Least daily movement,	54, 4th		
Mean hourly velocity	6.7	7.7	
Maximum velocity for 5 min., (corrected to conform to 3 cup anemometer)	32, 22nd	29	48, 1932
Wind (direction)			
Prevailing direction	w	wnw	
North, days	2		
Northeast, days	0		
East, days	1		
Southeast, days	8		
South, days	4		
Southwest, days	1		
West, days	9		
Northwest, days	6		
Weather			
Mean relative humidity, per cent	60.7	75.0	86.8, 1916; 59.5, 1932
Mean cloudiness, per cent	55.0	51.0	68, 1901; 27, 1915
Number of clear days	11	11	22, 1924; 3, 1901
Number of fair days	9	9	17, 1900; 4, 1895
Number of cloudy days	11	11	21, 1901; 1, 1915
Number of hours bright sunshine	193.7	201	292, 1924; 93, 1901
Percent of possible hours of bright sunshine	52.0	54.2	
Thunder and Lightning			
Frosts			

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1933.

REMARKS

The weather during the month of March was considerably colder than usual but in other respects quite near the normal. The mean temperature for the month was 30.9 degrees and the normal mean is 34.2 degrees. The continued cold weather during March with the cold weather during the winter months brings the heating load to 6578 degree-days or 11.5% above normal. The highest temperature was 61 degrees on the 5th and the lowest 5 degrees on the 1st. The total precipitation during the month was 3.60 inches and there were 5.5 inches of snow. The normal precipitation for March is 3.68 inches and the normal snowfall is 8.11 inches. There were 193.7 hours of bright sunshine compared with a normal of 201 hours. The total wind movement was 4979 miles whereas the normal March wind movement is 5738 miles. The prevailing direction was West.

More than the usual damage has been done to light macadam roads as the heavy frost has been coming out of the ground. Country roads have been unusually bad.

Dr. J. K. Shaw of the Department of Pomology offers the following additional comments on the effect of the winter on fruit trees:

> "Reports indicate that the severe temperatures have caused much injury to many fruit plants. Tender varieties of apple trees such as King, Gravenstein and Baldwin show injury to wood and especially to the fruit spurs. Some injury even to McIntosh is reported. We may expect considerably reduced crops and some permanent injury to trees .There is no reason to fear severe root killing as there has been a good snow cover. Peach fruit buds are practically all killed as far south as Chesapeake Bay and there is some wood killing. There seems to be no especially severe injury to healthy vigorous bush fruits nor to strawberry plants."

C. I. GUNNESS, *Meteorologist*

HERBERT JENKINS, *Observer*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 544 April, 1934

Meteorological Observations

FOR

APRIL

1934

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	58	4 P	36	7 A	47.0	70	1.4	w	200	18	0 A	10-30 A	.38	
2	68	5 P	32	7 A	50.0	68	12.7	s	97	22				
3	63	3 P	37	7 A	50.0	56	12.7	nw	155	13				
4	54	5 P	32	12 P	43.0	46	1.5	nw	142	14				
5	55	4 P	28	6 A	41.5	45	12.8	nw	116	8				
6	39	10 A	31	7 A	35.0	64	0.3	se	132	12	3-30 P	6 P	.15	
7	49	5 P	30	12 P	39.5	78	2.1	nw	119	13			T	
8	52	4 P	27	5 A	39.5	52	13.0	nw	84	13				
9	62	4 P	36	7 A	49.0	57	13.0	nw	110	28				
10	62	5 P	33	6 A	47.5	53	13.0	e	158	28				
11	62	2 P	30	6 A	46.0	70	9.5	e	211	25	8 P	12 P	.19	
12	48	11 A	30	12 P	39.0	66	1.8	se	169	28	0 A	1-30 P	2.10	
13	48	3 P	30	6 A	39.0	65	7.2	se	98	12				
14	44	4 P	32	12 P	38.0	82	2.1	se	105	17	0 A	6 P	.20	
15	57	5 P	31	2 A	44.0	62	13.0	se	109	13				
16	48	12 P	37	7 A	42.5	81	0.0	se	91	7	9 A	11 P	.71	
17	67	3 P	43	6 A	55.0	52	13.4	nw	151	20				
18	73	3 P	37	6 A	55.0	43	11.0	w	62	8				
19	67	1 P	41	6 A	54.0	65	2.8	se	149	20	6-30 P	12 P	.20	
20	56	0 A	45	12 P	50.5	78	1.8	nw	150	12	8 A	12 M	.21	
21	56	2 P	32	12 P	44.0	46	9.1	nw	94	13				
22	58	4 P	36	6 A	47.0	42	12.2	nw	155	14				
23	66	2 P	44	12 M	55.0	65	2.2	s	266	25				
24	72	3 P	53	3 A	62.5	63	13.0	s	310	32	10-30 P	12 P	.07	
25	50	2 P	40	6 A	45.0	53	7.6	nw	305	25	0 A	3 A	.20	
26	58	3 P	32	6 A	45.0	46	8.0	s	187	25				
27	56	11 A	42	3 A	49.0	57	0.0	nw	221	25	1 P	6 P	.03	
28	46	3 P	33	6 A	39.5	44	13.8	nw	314	39				
29	59	4 P	25	6 A	42.0	41	14.0	se	98	10				
30	67	4 P	35	6 A	51.0	55	14.0	s	210	15				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

April, 1934		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.63, 30th	30.48	30.71, 1911
Minimum	29.24, 12th	29.41	28.99, 1907, 1929
Mean semi-daily	30.001	29.99	
Range	1.39	1.08	1.52, 1930; 0.72, 1919
Air Temperature			
Highest	73, 18th	79.5	88.5, 1896
Lowest	25, 29th	21.6	8.5, 1923
Mean	46.2	45.8	
Monthly range	48	57.8	
Highest mean daily	62.5, 24th		
Lowest mean daily	35, 6th		
Mean maximum	57.3		
Mean minimum	35.0		
Greatest daily range	36, 2nd, 18th		
Least daily range	8, 6th		
Precipitation			
Precipitation. In inches	4.44	3.27	6.89, 1929; 0.76, 1892
Snow, in inches		2.32	11, 1891; 0, 1910
Maximum precipitation in 24 hrs.	2.29, 11th and 12th		
Number of days on which .01 or more inches of rain fell	11	11	18, 1909, 3, 1892
Wind (miles)			
Total movement	4,768	5,436	8,208, 1908; 3,853, 1917
Greatest daily movement	314, 28th		
Least daily movement,	62, 18th		
Mean hourly velocity	6.6	7.5	
Maximum velocity for 5 min., (corrected to conform to 3 cup anemometer)	39, 28th	29.	39, 1916, 1931, 1932
Wind (direction)			
Prevailing direction	wsw	wnw	
North, days	0		
Northeast, days	0		
East, days	2		
Southeast, days	8		
South, days	5		
Southwest, days	0		
West, days	2		
Northwest, days	13		
Weather			
Mean relative humidity, per cent	58.9	69.6	81.2, 1916; 54.5, 1892
Mean cloudiness, per cent	50.5	49.2	75, 1901; 34, 1925, 1927
Number of clear days	15	11	19, 1911; 3, 1898, 1902
Number of fair days	4	10	18, 1915; 2, 1894, 1901
Number of cloudy days	11	9	22, 1901; 3, 1899, 1924
Number of hours bright sunshine	239	221	296, 1911; 103, 1901
Percent of possible hours of bright sunshine	59.5	55	
Thunder and Lightning			
Frosts after the 15th: 21st, 26th, 28th, 29th			

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1933.

REMARKS

The weather during the month of April has been seasonal and normal in most respects. The mean temperature for the month was 46.2 degrees, which is 0.4 of a degree warmer than usual. The lowest temperature was 25 degrees on the 29th. This is a very low temperature for this date but temperatures as low have been observed on four previous occasions in May. It is interesting to note that the temperature also dropped to 25 degrees on April 28th in 1933. The total precipitation during the month was 4.44 inches, the normal for April being 3.27 inches. The total precipitation since the first of the year is now 14.36 inches. The normal precipitation for this period is 13.72 inches. There was more sunshine than normal with 239 hours, the normal being 221 hours.

Dr. Shaw makes the following statement as to vegetation: "The seasonal progress of vegetation is somewhat delayed, though a few warm days would bring fruit trees into bloom at the average date of about May 12 to 15. Evidence of extensive winter injury is not pronounced at this date, though there are a few trees of tender varieties, i. e., pear, peach, cherry and plum, that are not starting normally. Where there is severe wood killing it may be expected to show itself in greatly inhibited growth as the season advances. Many flowering shrubs have suffered winter injury, particularly California privet, roses and boxwood. The latter has suffered considerable root injury."

C. I. GUNNESS, *Meteorologist*

HERBERT JENKINS, *Observer*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 545 May, 1934

Meteorological Observations

FOR

MAY

1934

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	77	4 P	36	5 A	56.5	59	14.0	se	146	12				
2	58	0 A	42	7 A	50.0	52	14.0	se	131	14	11.30 P	12 P	.03	
3	66	4 P	57	7 A	61.5	91	0.0	ne	68	8	0 A	12 P	.97	
4	75	2 P	60	5 A	67.5	77	3.9	se	62	5	0 A	2 A	.02	
5	85	5 P	57	7 A	71.0	67	8.0	w	133	17				
6	82	7 P	64	5 A	73.0	43	10.7	w	155	17				
7	73	3 P	49	12 P	61.0	45	8.7	nw	276	28			T	
8	62	6 P	36	7 A	49.0	41	14.3	nw	208	25				
9	71	4 P	32	5 A	51.5	43	9.9	se	84	14			T	
10	74	5 P	51	7 A	62.5	85	3.7	se	241	18	4 A	9 P	1.18	
11	71	1 P	48	12 P	59.5	49	8.1	nw	255	12				
12	58	5 P	36	6 A	47.0	50	13.9	nw	169	20				
13	68	3 P	32	6 A	50.0	49	9.7	se	107	12			T	
14	69	5 P	53	3 A	61.0	52	4.9	w	159	15				
15	62	2 P	50	5 A	56.0	80	0.0	se	97	9	1 A	6 P	.11	
16	63	3 P	41	12 P	52.0	62	14.4	nw	218	22				
17	66	4 P	37	5 A	51.5	49	8.7	se	125	17				
18	72	4 P	45	6 A	58.5	42	14.6	nw	200	22				
19	74	3 P	39	6 A	56.5	51	14.6	nw	92	11	8 P	12 P	.11	
20	73	4 P	51	5 A	62.0	69	10.2	se	117	11				
21	82	2 P	53	6 A	67.5	67	6.2	se	93	10	6 P	9-30 P	.01	
22	86	2 P	63	5 A	74.5	69	6.6	s	188	35	5 P	7-30 P	.50	
23	67	3 P	45	12 P	56.0	41	14.9	n	202	20				
24	68	3 P	39	5 A	53.5	52	11.2	nw	94	14	8-30 P	12 P	.11	
25	52	2 P	45	12 P	48.5	76	0.0	ne	82	8	0 A	7-30 P	.33	
26	64	4 P	45	5 A	54.5	70	4.2	ne	142	13	6 A	10 A	.05	
27	74	5 P	40	5 A	57.0	55	13.7	w	101	15				
28	80	4 P	43	5 A	61.5	49	15.0	s	73	8				
29	78	4 P	48	4 A	63.0	68	6.9	s	91	8			T	
30	83	4 P	62	4 A	72.5	63	9.1	se	101	10				
31	85	4 P	61	5 A	73.0	52	15.0	sw	150	14				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

May, 1934		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.52, 1st	30.38	30.55, 1895
Minimum	29.48, 7th	29.51	29.16, 1893
Mean semi-daily	29.983	29.95	
Range	1.04	.88	1.21, 1929; 0.60, 1899
Air Temperature			
Highest	86, 22nd	85.5	94.5, 1911
Lowest	32, 9th 13th	30.8	24.0, 1900
Mean	59.3	56.8	
Monthly range	54	54.6	
Highest mean daily	74.5, 22nd		
Lowest mean daily	47, 12th		
Mean maximum	71.5		
Mean minimum	47.1		
Greatest daily range	41, 1st		
Least daily range	7, 25th		
Precipitation			
Precipitation. In inches	3.42	3.63	7.44, 1931; 0.48, 1903
Snow, in inches			
Maximum precipitation in 24 hrs.	1.18, 10th		
Number of days on which .01 or more inches of rain fell	11	12	20, 1901; 5, 1903
Wind (miles)			
Total movement	4,360	4,540	5,946, 1907; 2,180, 1894
Greatest daily movement	276, 7th		
Least daily movement,	62, 4th		
Mean hourly velocity	5.9	6. 1	
Maximum velocity for 5 min., (corrected to conform to 3 cup anemometer)	35, 22nd	25	35, 1912, 1929
Wind (direction)			
Prevailing direction	s	w	
North, days	1		
Northeast, days	3		
East, days	0		
Southeast, days	11		
South, days	3		
Southwest, days	1		
West, days	4		
Northwest, days	8		
Weather			
Mean relative humidity, per cent	58.6	70.7	83.9, 1927; 53.8, 1932
Mean cloudiness, per cent	53.4	51.5	70, 1901; 30, 1923
Number of clear days	16	10	20, 1923; 0, 1927
Number of fair days	9	11	17, 1907, 1926; 5, 1923
Number of cloudy days	6	10	20, 1927; 3, 1903, 1922
Number of hours bright sunshine	289.1	250.1	334, 1922; 137, 1927
Percent of possible hours of bright sunshine	63.8	55.2	
Thunder and Lightning	22nd		
Frosts	8th, 9th, 13th		
Last frost		12th	June 8, 1932; Apr. 23, 1904

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1933.

REMARKS

The weather during the month of May was warmer than usual with slightly less rain and more sunshine than normal. The mean temperature for the month was 59.3 degrees, the normal being 56.8 degrees. The highest temperature was 86 degrees on the 22nd. The lowest was 32 degrees on the 9th and 13th. There were frosts on the 8th, 9th and 13th. The normal date for the last frost is May 12. The heating load for the season, Sept. 15th to May 31st, was 7319 degree-days as against a normal of 6720 degree-days. This is 9 per cent higher than normal.

The total precipitation for the month was 3.42 inches as compared with a normal rainfall of 3.63 inches. The total rainfall since January 1 is now 17.78 inches, the normal for this period being 17.35 inches. There were 289.1 hours of bright sunshine, while the normal sunshine for May is 250.1 hours. There were 16 days recorded as clear, the normal for May being 10 clear days. There was slightly less wind than usual, the total wind movement being 4360 miles. The normal is 4540 miles. The highest wind velocity was 35 miles per hour on the 22nd.

The unusual meteorological phenomena of the month was the dust storm on the 11th carrying dust particles from the Middle West. In the morning the dust in the air produced a haze but later in the day it gave the same appearance as a local dust storm.

Dr Shaw makes the following observations on the fruit situation:

"Warm weather in early May hastened bloom to nearly the normal time. Owing to cooler weather later the bloom period was prolonged and only fairly favorable to a heavy set. Effect of the severe winter cold continued to appear. Gravenstein apple trees which bloomed well have failed to set fruit, and similar, though far less severe, injury appears in Baldwin. Pear trees seem to have bloomed and set better than expected considering the severe discoloration of the wood. Severe injury to peach trees has appeared and the crop is a complete failure."

C. I. Gunness, Meteorologist

Herbert Jenkins, Observer

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 546 June, 1934

Meteorological Observations

FOR

JUNE

1934

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	79	6 P	62	4 A	70.5	60	6.2	nw	80	8				
2	91	4 P	62	3 A	76.5	62	10.3	s	155	12	10-30 P	12 P	.33	
3	60	1 P	52	12 P	56.0	77	0.0	ne	120	12	0 A	1 A	.06	
4	71	5 P	52	6 A	61.5	75	3.9	s	81	8				
5	89	4 P	65	1 A	77.0	75	9.6	s	117	8				
6	85	2 P	64	5 A	74.5	73	7.8	sw	166	14	4 P	5-30 P	.01	
7	71	4 P	48	12 P	59.5	47	8.4	ne	212	22				
8	70	4 P	39	5 A	54.5	46	15.2	s	102	10				
9	69	12 M	52	3 A	60.5	71	2.0	se	181	13	9-30 P	12 P	.04	
10	89	1 P	61	0 A	75.0	70	10.1	se	124	22	2 P	4-30 P	.41	
11	77	3 P	56	12 P	66.5	57	15.1	w	169	20				
12	79	1 P	49	4 A	64.0	73	9.8	e	79	11	5-30 P	10 P	.82	
13	73	4 P	54	12 P	63.5	72	4.7	w	86	14	2 P	3 P	.16	
14	74	2 P	52	4 A	63.0	67	5.6	w	127	18				
15	81	3 P	52	5 A	66.5	56	7.9	w	99	13				
16	82	3 P	52	6 A	67.0	66	10.4	e	104	12	1 A	3-30 A	.36	
17	82	3 P	52	5 A	67.0	60	15.3	se	98	11				
18	78	2 P	55	5 A	66.5	57	13.3	se	146	12				
19	68	2 P	56	12 P	62.0	87	0.0	se	172	18	4 A	12 P	1.68	
20	83	3 P	54	5 A	68.5	59	13.8	nw	223	20	1 A	2 A	.01	
21	89	4 P	57	5 A	73.0	64	11.5	s	127	20				
22	82	5 P	61	12 P	71.5	65	15.3	nw	194	18				
23	82	5 P	56	6 A	69.0	79	8.4	sw	81	10	3-30 A	8 A	.51	
24	84	3 P	60	5 A	72.0	74	10.2	se	135	13				
25	82	4 P	60	12 P	71.0	52	15.3	w	200	20	1 A	2 A	.18	
26	73	1 P	53	12 P	63.0	61	10.1	nw	110	9			T	
27	66	6 P	52	3 A	59.0	86	0.0	sw	35	5	2 P	3 P	.10	
28	83	3 P	58	1 A	70.5	74	10.9	sw	71	11				
29	93	3 P	67	5 A	80.0	56	15.3	w	200	25				
30	88	5 P	67	5 A	77.5	57	15.3	sw	53	11				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

June, 1934		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.39, 8th	30.31	30.54, 1889
Minimum	29.57, 19th	29.56	29.24, 1902
Mean semi-daily	29.896	29.961	
Range	.82	.75	1.27, 1902; 0.52, 1916
Air Temperature			
Highest	93, 29th	91.1	101.0, 1919
Lowest	39, 8th	40.0	34.0, 1891
Mean	67.6	65.4	
Monthly range	54	51.2	
Highest mean daily	80, 29th		
Lowest mean daily	54.5, 8th		
Mean maximum	79.1		
Mean minimum	56.0		
Greatest daily range	31, 8th		
Least daily range	8, 3rd		
Precipitation			
Precipitation. In inches	4.67	3.54	9.68, 1922; 0.76, 1908
Snow, in inches			
Maximum precipitation in 24 hrs.	1.68, 19th		
Number of days on which .01 or more inches of rain fell	13	10	17, 1922; 4, 1908
Wind (miles)			
Total movement	3,847	3,584	4,571, 1908; 1,409, 1906
Greatest daily movement	223, 20th		
Least daily movement,	35, 27th		
Mean hourly velocity	5.3	5.0	
Maximum velocity for 5 min., (corrected to conform to 3 cup anemometer)	25, 29th	23	40, 1932
Wind (direction)			
Prevailing direction	sw	wsw	
North, days	0		
Northeast, days	2		
East, days	2		
Southeast, days	6		
South, days	5		
Southwest, days	5		
West, days	6		
Northwest, days	4		
Weather			
Mean relative humidity, per cent	65.9	73.9	85.9, 1922; 63.2, 1932
Mean cloudiness, per cent	51.7	50.1	71, 1903; 28, 1908
Number of clear days	13	9	22, 1908; 1, 1907, 1926
Number of fair days	12	13	23, 1912; 4, 1895, 1903
Number of cloudy days	5	8	22, 1903; 1, 1923
Number of hours bright sunshine	281.7	257.4	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	61.6	56.2	
Thunder and Lightning	6th, 12th, 25th		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1933.

REMARKS

The weather during June was favorable for all growing crops. The temperature was considerably higher than normal with a mean of 67.6 degrees, the normal being 65.4 degrees. The highest temperature was 93 degrees on the 29th and the lowest 39 degrees on the 8th. These are seasonable temperatures for June. The total rainfall during the month was 4.67 inches as compared to a normal of 3.54 inches and was well distributed through the month. The total rainfall since January 1 is now 22.45 inches, the normal for this period being 20.89 inches. There were 281.7 hours of bright sunshine. The normal hours of sunshine for June is 257.4 hours. There was thunder and lightning on the 6th, 12th, and 25th. Dr. J. K. Shaw offers the following observations on the fruit crops:

> "Adequate rainfall and generally favorable weather conditions have promoted a satisfactory development of all fruit crops. Recovery from injury due to the severe winter has progressed as well as could be expected. The most severe damage continues to appear among peach trees and Baldwin apple trees. Pear trees and many Gravenstein apple trees have recovered rather remarkably, considering the condition of the wood last spring. Many Baldwin trees have been ruined. The most severe damage is to trees of low vigor and to those that bore heavily last year."

Dr. A. B. Beaumont has following comment on the hay crop:

> "Winter killing of alfalfa and clover was severe in Massachusetts. Grass was injured to a less extent. The injury appeared to be due to the formation of local ice sheets which smothered the plants. Due to depleted stands of alfalfa, clover, and grass the hay crop in western Massachusetts will be lighter than normal in spite of the generous rainfall of the past month."

FRANK SHAW *Observer*	C. I. GUNNESS *Meteorologist*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 547 July, 1934

Meteorological Observations

FOR

JULY

1934

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	89	3 P	62	4 A	75.5	58	9.0	w	91	12			T	
2	86	6 P	62	5 A	74.0	52	15.3	w	98	11				
3	92	4 P	59	5 A	75.5	72	12.8	sw	88	28	6-30 P	8-30 P	.27	
4	84	5 P	60	12 P	72.0	57	15.1	nw	139	14				
5	85	2 P	51	5 A	68.0	68	4.4	s	64	5				
6	89	4 P	65	3 A	77.0	79	6.0	se	89	11				
7	91	12 M	71	12 P	81.0	71	10.5	se	133	12	6 P	7 P	.01	
8	78	4 P	63	6 A	70.5	68	7.3	nw	86	8	1 A	7 A	.20	
9	84	4 P	57	5 A	70.5	58	14.2	nw	94	9				
10	82	3 P	55	6 A	68.5	60	14.6	se	102	10				
11	81	5 P	53	6 A	67.0	60	14.6	se	77	9				
12	79	5 P	57	5 A	68.0	63	11.4	se	115	7				
13	84	3 P	61	5 A	72.5	71	6.8	se	130	13	7-30 P	8-30 P	.10	
14	81	1 P	64	3 A	72.5	85	2.1	se	82	12				
15	88	3 P	69	4 A	78.5	74	7.9	se	79	7				
16	83	2 P	60	12 P	71.5	54	14.8	nw	192	18				
17	80	3 P	49	5 A	64.5	47	15.0	nw	126	16				
18	82	6 P	51	5 A	66.5	48	15.0	nw	127	18				
19	90	4 P	54	5 A	72.0	52	15.0	sw	91	10				
20	88	4 P	70	4 A	79.0	85	3.7	se	107	10	8 A	9 A	.02	
21	86	6 P	68	5 A	77.0	71	8.5	se	82	7				
22	83	2 P	60	5 A	71.5	47	14.6	nw	118	13				
23	81	5 P	48	5 A	64.5	53	14.6	nw	113	10				
24	78	1 P	51	5 A	64.5	54	8.7	w	60	9				
25	73	12 P	65	3 A	69.0	86	0.0	se	105	10			T	
26	92	3 P	71	5 A	81.5	76	8.0	se	98	14	11 P	12 P	.02	
27	78	5 P	71	6 A	74.5	90	0.0	se	68	8	1 A	12 P	.33	
28	81	11 A	68	12 P	74.5	86	2.0	se	120	9	7 A	8 P	.75	
29	85	3 P	61	4 A	73.0	63	7.1	nw	42	6				
30	85	3 P	62	5 A	73.5	65	1.5	w	75	8				
31	87	4 P	64	12 P	75.5	69	6.3	s	96	17	9 P	10 P	.03	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

July, 1934		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.40, 10th	30.28	30.50, 1892
Minimum	29.71, 20th	29.60	29.27, 1932
Mean semi-daily	29.952	29.972	
Range	.69	.68	0.97, 1892; 0.51, 1895, 1899
Air Temperature			
Highest	92, 3rd, 26th	93.9	104.0, 1911
Lowest	48, 23rd	45.5	40.0, 1890, 1898
Mean	72.4	70.6	
Monthly range	44	48.4	
Highest mean daily	81.5, 26th		
Lowest mean daily	64.5, 17th, 23d, 24th		
Mean maximum	84.0		
Mean minimum	60.7		
Greatest daily range	36, 19th		
Least daily range	7, 27th		
Precipitation			
Precipitation. In inches	1.73	4.33	14.51, 1897; 0.70, 1929
Snow, in inches			
Maximum precipitation in 24 hrs.	.75, 28th		
Number of days on which .01 or more inches of rain fell	9	11	20, 1915; 4, 1924
Wind (miles)			
Total movement	3,087	3,435	5,097, 1909; 1,109, 1894
Greatest daily movement	192, 16th		
Least daily movement,	42, 29th		
Mean hourly velocity	4.1	4.6	
Maximum velocity for 5 min., (corrected to conform to 3 cup anemometer)	28, 3rd	24	39, 1908, 1915
Wind (direction)			
Prevailing direction	s	sw	
North, days	0		
Northeast, days	0		
East, days	0		
Southeast, days	14		
South, days	2		
Southwest, days	2		
West, days	4		
Northwest, days	9		
Weather			
Mean relative humidity, per cent	65.9	75.6	88.8, 1927; 64.8, 1893
Mean cloudiness, per cent	55	50.1	69, 1914; 31, 1924
Number of clear days	10	9	22, 1923; 0, 1915
Number of fair days	14	14	24, '09 '21; 5, '89, '23, '28
Number of cloudy days	7	8	18, 1889; 0, 1910
Number of hours bright sunshine	286.8	267.0	371, 1910; 182, 1889
Percent of possible hours of bright sunshine	62.1	57.8	
Thunder and Lightning	3rd, 13th, 26th, 28th, 31st		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1933.

REMARKS

The weather during July was hot and dry. While we did not experience a destructive drouth like in the Middle West, there was some loss to certain crops due to lack of rain in July. Only 1.73 inches of rain fell during the month. Only .60 inch fell until the 26th which made it quite dry by that time. The normal rainfall for July is 4.33 inches. The least rainfall we have ever had in July was in 1929 when only .70 inch fell. The greatest rainfall in July was 14.51 inches in 1897. The total rainfall since January 1 is now 24.18 inches, while the normal rainfall for this period is 25.22 inches.

The mean temperature for the month was 72.4 degrees, the normal being 70.6 degrees. The highest temeperature was 92 degrees on the 3rd and 26th. The lowest was 48 degrees on the 23rd.

There was more sunshine than usual with a total of 286.8 hours, the normal being 267 hours.

C. I. GUNNESS, *Meteorologist*

FRANK SHAW, *Observer*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 548 August, 1934

Meteorological Observations

FOR

AUGUST

# 1934

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.			Mean Relative Humidity	No. Hours of Bright Sunshine							
Day.	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	81	3 P	58	12 P	69.5	68	0.0	nw	92	17				
2	83	1 P	52	5 A	67.5	63	7.0	e	107	13	11 A	12 P	.11	
3	83	5 P	68	12 P	75.5	72	5.0	sw	131	15	0 A	3 [illegible]	.31	
4	77	2 P	63	12 P	70.0	61	4.0	w	137	17				
5	71	6 P	50	12 P	60.5	50	11.0	w	190	22				
6	73	6 P	44	4 A	58.5	61	14.3	n	70	9				
7	82	5 P	44	7 A	63.0	68	14.3	s	50	7				
8	85	3 P	59	5 A	72.0	69	14.2	se	112	11				
9	82	3 P	58	6 A	70.0	69	5.0	se	136	13				
10	89	4 P	65	3 A	77.0	77	3.5	se	130	12				
11	84	5 P	61	12 P	72.5	62	0.0	n	113	12				
12	72	3 P	55	6 A	63.5	67	0.0	n	75	6	8-30 P	10-30 P	.14	
13	66	3 P	56	5 A	61.0	83	0.5	n	59	5				
14	84	5 P	57	3 A	70.5	67	9.0	s	72	6				
15	76	3 P	58	12 P	67.0	69	0.0	se	62	7				
16	65	11 A	50	6 A	57.5	85	0.0	e	34	4	11 A	8 P	.58	
17	80	5 P	51	6 A	65.5	76	9.0	n	58	7				
18	80	2 P	58	4 A	69.0	77	10.5	se	91	7				
19	85	3 P	60	5 A	72.5	79	8.8	se	118	18				
20	78	3 P	54	12 P	66.0	51	10.6	w	230	22				
21	74	3 P	47	6 A	60.5	60	13.7	se	92	9				
22	80	2 P	48	7 A	64.0	72	12.1	se	108	9	7 P	12 P	.53	
23	75	3 P	56	12 P	65.5	64	8.0	sw	84	9				
24	74	7 A	56	5 A	65.0	91	1.0	se	48	13	10-30 A	2 P	1.10	
25	74	3 P	54	12 P	64.0	57	7.5	se	112	9				
26	74	3 P	52	6 A	63.0	60	8.2	se	42	5				
27	78	2 P	47	6 A	62.5	59	13.5	w	64	12				
28	60	0 A	50	8 A	55.0	88	0.0	se	118	13	7-30 A	1 P	.25	
29	67	5 P	46	12 P	56.5	69	5.0	se	118	22			T	
30	69	3 P	39	7 A	54.0	67	13.1	w	110	14				
31	72	5 P	38	7 A	55.0	65	13.2	sw	64	11				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

August, 1934		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.50, 31st	30.32	30.48, 1918
Minimum	29.71, 3rd	29.63	28.87, 1930
Mean semi-daily	30.028	30.00	
Range	0.79	.69	1.49, 1930; 0.44, 1894
Air Temperature			
Highest	89, 10th	91.3	100.0, 1918
Lowest	38, 31st	42.9	37.0, 1894, 1908
Mean	65.0	68.4	
Monthly range	51	48.4	
Highest mean daily	77, 10th		
Lowest mean daily	54.0, 30th		
Mean maximum	76.6		
Mean minimum	53.4		
Greatest daily range	38, 7th		
Least daily range	10, 13th, 28th		
Precipitation			
Precipitation. In inches	3.02	4.24	8.40, 1928; 0.31, 1894
Snow in inches			
Maximum precipitation in 24 hrs.	1.10, 24th		
Number of days on which .01 or more inches of rain fell	7	10	16, 1892, 1933; 4, 1889
Wind (miles)			
Total movement	3,027	3,099	4,271, 1910; 1,920, 1894
Greatest daily movement	230, 20th		
Least daily movement,	34, 16th		
Mean hourly velocity	4.0	4.2	
Maximum velocity for 5 min., (corrected to conform to 3 cup anemometer)	22, 5th, 20th, 29th	21	35, 1915
Wind (direction)			
Prevailing direction	s	sw	
North, days	5		
Northeast, days	0		
East, days	2		
Southeast, days	13		
South, days	2		
Southwest, days	3		
West, days	5		
Northwest, days	1		
Weather			
Mean relative humidity, per cent	68.6	78.4	87.3, 1927; 65, 1929
Mean cloudiness, per cent	51.5	49.4	67, 1901; 27, 1923
Number of clear days	11	9	17, 1921; 0, 1915
Number of fair days	11	13	25, 1912; 5, 1893, 1933
Number of cloudy days	9	9	18, '01 '28; 2, '10 '23
Number of hours bright sunshine	222.0	237.0	317, 1921; 152, 1915, 1929
Percent of possible hours of bright sunshine	52.0	55.2	
Thunder and Lightning	22nd		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1933.

REMARKS

The weather during the month of August was marked with low temperature, less rain than normal and slightly less sunshine than normal. The mean temperature was 65 degrees whereas the normal mean temperature for August is 69.3 degrees. Only twice since the station was established has the mean temperature fallen below 65 degrees. In 1903 the mean temperature for August was 62.4 degrees and in 1927 it was 64.9 degrees. In Amherst College records for the period from 1837 to 1888 there were only two years when a mean temperature of less than 65 was recorded. In 1866 the mean was 63.5 degrees and in 1887 it was 64.9 degrees. The low mean of the past month was chiefly due to the lack of high temperatures during the day rather than low night temperatures. The lowest temperature during the month was 38 degrees on the 31st. This, however, is not unusual for this season. Frost was not recorded at the observatory, although there were frosts on the 30th and 31st in other parts of the town.

The precipitation for the month was 3.02 inches, the normal being 4.24 inches. The total precipitation since January 1 is now 27.17 inches, the normal being 29.46 inches. There were 222 hours of bright sunshine compared with a normal of 237 hours. The mean relative humidity for the month was 68.6 per cent.

Dr. Shaw makes the following statement: "The dry weather during July and early August does not seem to have seriously injured the fruit crop. There may be some check in growth of the fruit but in general those fruits that have survived the winter cold are of good size and and quality. The crop will be smaller than that of last year due mostly to a fairly heavy crop in 1933 and to winter injury to tender varieties. Pears seem to be somewhat undersized due perhaps to spur injury last winter."

FRANK SHAW, *Observer* C. I. GUNNESS, *Meteorologist*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 549 September, 1934

Meteorological Observations

FOR

SEPTEMBER

1934

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	74	3 P	42	7 A	58.0	66	12.7	se	68	9				
2	73	5 P	49	6 A	61.0	68	11.5	se	87	9				
3	78	4 P	50	5 A	64.0	78	4.5	se	59	11	9 P	10 P	.04	
4	78	11 A	65	2 A	71.5	84	0.0	e	152	17	0 A	1 P	.25	
5	77	4 P	53	12 P	65.0	76	6.4	sw	149	11				
6	78	4 P	47	6 A	62.5	65	10.2	se	44	7				
7	70	6 P	54	3 A	62.0	87	0.5	ne	57	7	0 A	12 M	.10	
8	66	4 P	59	9 P	62.5	91	0.0	ne	108	20	2 A	12 P	1.00	
9	78	2 P	58	3 A	63.0	75	4.5	w	187	25	0 A	3 A	.96	
10	81	4 P	52	8 A	66.5	77	6.0	nw	118	9				
11	76	1 P	50	7 A	63.0	68	7.1	n	45	8				
12	68	1 P	51	5 A	59.5	77	0.0	ne	62	8				
13	71	2 P	55	7 A	63.0	64	3.5	e	81	13				
14	70	1 P	53	4 A	61.5	75	2.5	se	54	7			T	
15	65	3 P	59	4 A	62.0	88	0.0	se	89	7	11 A	12 P	.08	
16	73	3 P	61	1 A	67.0	86	0.0	se	108	20	6 P	10 P	.06	
17	71	11 A	60	12 P	65.5	90	0.0	e	174	13	3 A	2 P	4.45	
18	65	2 P	56	12 P	60.5	73	0.0	nw	211	15				
19	66	4 P	56	6 A	61.0	77	0.0	n	104	10	3 P	4 P	.02	
20	72	3 P	58	6 A	65.0	77	1.6	se	45	6				
21	75	4 P	58	7 A	66.5	74	2.9	se	79	11				
22	70	3 P	59	6 A	64.5	83	0.0	nw	50	5	12-30 P	11 P	.14	
23	78	3 P	65	4 A	71.5	79	1.0	n	84	10				
24	72	3 P	65	7 A	68.5	79	0.0	n	124	13	11 P	12 P	.02	
25	82	5 P	64	4 A	73.0	74	9.8	n	44	5				
26	83	4 P	59	4 A	71.0	88	7.0	sw	87	20				
27	78	3 P	66	6 A	72.0	75	0.9	s	163	39	4-30 P	5 P	.30	
28	69	4 P	48	7 A	58.5	68	11.9	s	61	6				
29	70	8 P	45	7 A	57.5	91	0.0	se	60	11	8 A	12 P	1.20	
30	68	2 P	61	7 A	64.5	79	1.5	w	92	20	0 A	8 A	.92	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

September, 1934		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.53, 1st	30.45	30.65, 1924
Minimum	29.75, 9th	29.59	29.32, 1900
Mean semi-daily	30.126	30.068	
Range	0.78	.86	1.20, 1904; 0.57, 1910
Air Temperature			
Highest	83, 26th	87.4	97.0, 1895, 1929
Lowest	42, 1st	32.8	24.5, 1914
Mean	64.6	61.6	
Monthly range	41	54.6	
Highest mean daily	73, 25th		
Lowest mean daily	57.5, 29th		
Mean maximum	73.2		
Mean minimum	55.9		
Greatest daily range	32, 1st		
Least daily range	6, 15th		
Precipitation			
Precipitation. In inches	9.54	3.79	8.74, 1907; 0.52, 1914
Snow, in inches			
Maximum precipitation in 24 hrs.	4.51, 16th, 17th		
Number of days on which .01 or more inches of rain fell	14	9	15, 1918; 3, 1903
Wind (miles)			
Total movement	2,846	3,252	4,686, 1896; 1,414, 1894
Greatest daily movement	211, 18th		
Least daily movement	44, 6th, 25th		
Mean hourly velocity	4.0	4.5	
Maximum velocity for 5 min., (corrected to conform to 3 cup anemometer)	39, 27th	22	39, 1915
Wind (direction)			
Prevailing direction	e	wsw	
North, days	5		
Northeast, days	3		
East, days	3		
Southeast, days	10		
South, days	2		
Southwest, days	2		
West, days	2		
Northwest, days	3		
Weather			
Mean relative humidity, per cent	77.7	80.0	89, 1927; 68, 1932
Mean cloudiness, per cent	70.0	48.7	65, 1889; 27, 1908, 1914
Number of clear days	5	9	19, 1932; 2, 1907, 1928
Number of fair days	5	11	19, 1908; 3, 1889
Number of cloudy days	20	10	19, '89 '07; 4, '08 '16
Number of hours bright sunshine	106.0	202.5	255, 1916; 110, 1907
Percent of possible hours of bright sunshine	28	54.4	
Thunder and Lightning	27th		
First frosts		19th	Aug. 22, '94, '95; Oct. 13, '09

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1933.

REMARKS

Rain fell on 14 days during the month of September, with a total of 9.54 inches. This is an all-time record for rain in September at this station except for 1933 when 12.34 inches fell. During the storm on the 17th, 4.45 inches fell between 3 A. M. and 2 P. M. The total precipitation since January 1 is now 36.71 inches, while the normal amount for this period is 33.25 inches. There were only 106 hours of bright sunshine compared with a normal of 202.5 hours. This is the least amount of sunshine ever recorded in September in the history of the station, the nearest approach to this being 110 hours in 1907. Five days were classified as clear, 5 as fair and 20 as cloudy. The mean temperature for the month was 64.6 degrees, the normal being 61.6 degrees. The highest temperature was 83 degrees on the 26th and the lowest, 42 degrees on the 1st. The total wind movement during the month was 2846 miles, while the normal is 3252 miles. The highest wind velocity was 39 miles per hour on the 27th.

A. H. MADDEN, *Observer* C. I. GUNNESS, *Meteorologist*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 550 October, 1934

Meteorological Observations

FOR

OCTOBER

1934

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	55	4 P	42	7 A	48.5	70.5	11.8	n	190	13				
2	62	4 P	32	6 A	47.0	90.5	7.0	w	29	6				
3	72	4 P	36	5 A	54.0	83.5	9.0	w	50	7				
4	65	2 P	40	12 P	52.5	66.5	11.6	n	155	13				
5	61	3 P	32	3 A	46.5	83.5	2.6	s	78	7				
6	62	8 P	51	6 A	56.5	90.0	0.0	s	65	6	2 A	7 P	.87	
7	60	3 P	51	6 A	55.5	54.0	5.0	w	237	39				
8	71	4 P	43	7 A	57.0	62.5	11.4	sw	146	15				
9	61	3 P	44	6 A	52.5	60.0	11.4	w	156	22				
10	61	4 P	28	6 A	44.5	69.0	11.3	w	60	7				
11	64	2 P	45	7 A	54 5	86.5	2.0	n	88	7	5 P	11-30 P	.32	
12	45	1 P	41	8 A	43.0	64.0	9.0	nw	294	25				
13	45	1 P	34	2 A	39.5	63.0	1.5	n	420	28			T	T
14	54	4 P	30	6 A	42.0	65.0	11.1	nw	181	20				
15	57	5 P	41	6 A	49.0	85.0	1.0	s	63	9			T	
16	59	4 P	32	7 A	45.5	78.0	11.1	nw	70	9				
17	66	3 P	30	7 A	48.0	80.0	11.0	s	66	11				
18	66	2 P	50	0 A	58.0	75.0	3.0	s	122	15				
19	50	3 P	42	8 A	46.0	66.0	3.5	n	195	17				
20	52	4 P	37	7 A	44.5	67.0	6.0	e	224	18				
21	54	3 P	32	7 A	43.0	88.0	3.2	e	64	6	5-30 P	8 P	.08	
22	53	3 P	46	7 A	49.5	91.0	0.0	ne	33	6	1 A	12 P	.38	
23	59	2 P	50	0 A	54.5	79.0	0.0	e	202	17	0 A	4 A	.03	
24	62	3 P	46	7 A	54.0	72.0	6.5	se	118	15				
25	66	4 P	34	7 A	50.0	79.0	10.7	e	47	6				
26	49	1 P	34	4 A	41.5	93.0	1.0	sw	66	15	1 A	11 P	.67	
27	49	2 P	36	7 A	42.5	57.0	10.6	w	253	25				
28	43	1 P	33	2 A	38.0	46.0	10.0	w	282	28				T
29	50	1 P	32	4 A	41.0	54.0	9.5	sw	221	20				
30	50	1 P	30	7 A	40.0	56.0	9.5	sw	141	20				
31	52	4 P	28	7 A	40.0	78.0	9.0	s	90	11				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

October, 1934		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.53, 4th, 5th	30.53	30.68, 1929
Minimum	29.51, 27th	29.42	29.00, 1926
Mean semi-daily	30.027	30.059	
Range	1.02	1.11	1.47, 1926; 0.76, 1899
Air Temperature			
Highest	72, 3rd	79.7	90.5, 1908
Lowest	28, 10th, 31st	23.4	18.0, 1904
Mean	47.7	50.4	
Monthly range	44	56.3	
Highest mean daily	58, 18th		
Lowest mean daily	38, 28th		
Mean maximum	57.3		
Mean minimum	38.1		
Greatest daily range	36, 3rd, 17th		
Least daily range	4, 12th		
Precipitation			
Precipitation. In inches	2.35	3.35	8.81, 1911; 0.01, 1924
Snow, in inches	T		
Maximum precipitation in 24 hrs.	.87, 6th		
Number of days on which .01 or more inches of rain fell	6	8	15, 1913; 1, 1897, 1924
Wind (miles)			
Total movement	4,406	4,023	5,467, 1910; 2,540, 1894
Greatest daily movement	420, 13th		
Least daily movement	33, 22nd		
Mean hourly velocity	6.0	5.4	
Maximum velocity for 5 min., (corrected to conform to 3 cup anemometer)	39, 7th	27	35, 1906, 1916, 1925, 1929
Wind (direction)			
Prevailing direction	w	w	
North, days	5		
Northeast, days	1		
East, days	4		
Southeast, days	1		
South, days	6		
Southwest, days	4		
West, days	7		
Northwest, days	3		
Weather			
Mean relative humidity, per cent	72.7	76.9	86.7, 1920; 64, 1929
Mean cloudiness, per cent	46.0	47.6	67, 1932; 18, 1924
Number of clear days	16	8	15, 1931; 1, 1911
Number of fair days	5	11	17, '24; 5, '94, '96, '98, '03, '17
Number of cloudy days	10	12	19, 1896; 3, 1924
Number of hours bright sunshine	210.3	171.0	232, 1923; 91, 1913
Percent of possible hours of bright sunshine	61.7	50.1	
Thunder and Lightning			
Frosts, 2, 5, 10, 14, 16, 17, 21, 28, 29, 30, 31			

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1933

REMARKS

The weather during the month of October was colder than normal, with more sunshine and less rain than usual. The mean temperature for the month was 47.7, while the normal for October is 50.4 degrees. The lowest temperature was 28 degrees on the 10th and 31st, while the normal minimum for October is 23.4 degrees. The highest temperature, however, was only 72 degrees, whereas the normal maximum for October is 79.7 degrees. There were only six days of rain with a total of 2.35 inches, the normal being 3.35 inches. The total rainfall since January 1 is now 39.06 inches, an excess of 2.46 inches over the normal. There was a total of 210.3 hours of bright sunshine, the normal for October being 171.0 hours. The total wind movement for the month was 4406 which is about 400 miles in excess of the normal.

Dr. A. B. Beaumont comments as follows on the hay and pasture situation: "Unusually mild temperatures and abundant rainfall in September have been favorable to fall growth of grasses and clovers. These conditions have helped produce a rowen hay crop larger and of better quality, and fall pasturage of better quality and for a longer period than usual."

ARCHIE MADDEN, *Observer* C. I. GUNNESS, *Meteorologist*

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 551 November, 1934

Meteorological Observations

FOR

NOVEMBER
1934

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	47	11 A	41	3 A	44.0	75.0	2.5	se	141	28	3-30 A	1 P	.72	
2	42	12 M	27	7 A	34.5	65.0	10.3	w	171	28				
3	53	3 P	24	6 A	38.5	71.0	10.2	se	115	12				
4	63	8 P	44	2 A	53.5	87.0	1.7	se	192	25	11-30 A	8-30 P	.49	
5	66	4 P	45	8 A	55.5	77.0	8.5	e	58	6				
6	52	9 A	48	12 P	50.0	79.0	0.0	nw	235	25	9 A	11-30 P	.60	
7	48	12 M	35	7 A	41.5	71.0	6.0	e	160	15			T	
8	51	2 P	36	3 A	43.5	69.0	8.5	sw	111	13				
9	45	3 P	35	7 A	40.0	70.0	10.0	w	178	20				
10	48	12 M	26	1 A	37.0	52.0	6.5	se	110	13	8-30 P	11-30 P	.22	
11	48	1 P	30	12 P	39.0	80.0	4.0	nw	81	18	1-30 A	3-30 A	.04	
12	41	12 M	27	12 P	34.0	56.0	4.5	nw	143	20				T
13	37	12 M	26	6 A	31.5	62.0	0.5	s	158	15	4 P	8 P	.05	T
14	34	3 P	28	8 A	31.0	50.0	9.5	n	219	20				
15	41	4 P	12	7 A	26.5	50.0	7.5	se	61	11				
16	48	2 P	29	12 P	38.5	54.0	9.8	nw	123	12				
17	60	2 P	28	7 A	44.0	76.0	6.7	sw	100	9				
18	64	2 P	38	7 A	51.0	76.0	6.0	se	87	7				
19	64	3 P	44	2 A	54.0	69.0	3.0	se	114	12			T	
20	67	1 P	46	7 A	56.5	79.0	4.5	ne	90	15				
21	43	9 P	39	8 A	41.0	93.0	0.0	nw	83	6				
22	53	9 P	41	6 A	47.0	89.0	0.0	nw	62	8				
23	67	3 P	49	6 A	58.0	84.0	3.0	se	135	17			T	
24	48	2 P	31	12 P	39.5	79.0	2.0	nw	304	22	1 A	7 A	.31	
25	41	3 P	26	12 P	33.5	67.0	9.5	n	311	25				
26	33	1 P	21	7 A	27.0	77.0	4.5	n	163	17				
27	40	4 P	30	0 A	35.0	94.0	0.0	nw	88	9			T	
28	52	2 P	37	4 A	44.5	88.0	0.8	n	61	10				
29	60	3 P	50	8 A	55.0	94.0	0.0	se	110	10	4-30 A	11-30 P	.13	
30	62	8 P	58	0 A	60.0	96.0	0.0	se	154	15	3 A	12 P	.90	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

November, 1934		Normal	Extremes
Barometer			
(Readings reduced to sea level)			
Maximum	30.75, 26th	30.58	30.87, 1932
Minimum	29.42, 1st	29.34	28.73, 1904
Mean semi-daily	30.128	30.046	
Range	1.33	1.29	1.84, 1904; 0.98, 1890
Air Temperature			
Highest	67, 20th, 23rd	65.3	75.0, 1924
Lowest	12, 15th	13.8	3.5, 1891
Mean	42.8	38.6	
Monthly range	55	51.4	
Highest mean daily	60, 30th		
Lowest mean daily	26.5, 15th		
Mean maximum	50.6		
Mean minimum	35.0		
Greatest daily range	32, 17th		
Least daily range	4, 6th, 21st, 30th		
Precipitation			
Precipitation. In inches	3.46	3.45	8.64, 1927; 0.63, 1917
Snow, in inches	T	2.05	9, 24; t, 89, 93, 03, 12, 18, 19, 22, 27, 32
Maximum precipitation in 24 hrs.	.90, 30th		
Number of days on which .01 or more inches of rain fell	9	9	22, 1921; 2, 1904
Wind (miles)			
Total movement	4,118	4,564	5,978, 1906; 2,589, 1889
Greatest daily movement	311, 25th		
Least daily movement	58, 5th		
Mean hourly velocity	5.7	6.3	
Maximum velocity for 5 min., (corrected to conform to 3 cup anemometer)	28, 1st, 2nd	29	40, 1915
Wind (direction)			
Prevailing direction	ne	w	
North, days	4		
Northeast, days	1		
East, days	2		
Southeast, days	10		
South, days	1		
Southwest, days	2		
West, days	2		
Northwest, days	8		
Weather			
Mean relative humidity, per cent	74.3	76.3	85.9, 1907; 63.3, 1932
Mean cloudiness, per cent	63.0	53.5	72, 1900, 1927; 34, 1917
Number of clear days	10	6	15, '03; 1, '00, '11, '27
Number of fair days	9	9	16, '12; 4, '89, '30, '32
Number of cloudy days	11	15	24, '27; 9, '90, '05, '17
Number of hours bright sunshine	140	121.0	182, 1903; 66, 1927
Percent of possible hours of bright sunshine	47.7	41.3	
Thunder and Lightning	1st		
Frosts			

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1933

REMARKS

The weather during November was considerably warmer than usual, with a normal amount of rainfall and more sunshine than usual. The mean temperature for the month was 42.8 degrees, the normal being 38.6 degrees. The highest temperature was 67 degrees on the 20th and 23rd. The lowest was 12 degrees on the 15th. The mean temperature for the 29th and 30th was 55 degrees and 60 degrees respectively, which is unusually high for this season of the year. The total rainfall during the month was 3.46 inches, which is .01 more than the normal. The total precipitation since January 1 is now 42.52 inches, the normal being 40.05 inches. There were 140 hours of bright sunshine recorded, while the normal sunshine for November is 121 hours. The total wind movement was 4118 miles, the normal being 4564 miles.

ARCHIE MADDEN, *Observer* C. I. GUNNESS, *Meteorologist*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 552 December, 1934

Meteorological Observations

FOR

DECEMBER

1934

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	64	1 P	60	0 A	62.0	89.0	0.0	se	293	28	4-30 A	6 P	.87	
2	45	12 M	42	8 A	43.5	63.0	0.6	w	283	32				
3	41	12 M	31	8 A	36.0	64.0	6.0	w	133	8				
4	48	2 P	36	3 A	42.0	91.0	1.0	se	130	22	0 A	5-30 A	.23	
5	40	11 A	36	7 A	38.0	59.0	6.1	w	273	25				T
6	35	2 P	30	8 A	32.5	64.0	6.0	w	170	14				
7	27	1 P	14	8 A	20.5	74.0	9.2	nw	139	13				
8	17	3 P	9	7 A	13.0	71.0	8.9	nw	209	14				
9	23	3 P	2	7 A	12.5	72.0	9.1	nw	75	12				
10	21	2 P	4	7 A	12.5	76.0	9.1	n	62	5				
11	17	1 P	3	8 A	10.0	62.0	9.1	nw	204	20				
12	30	2 P	4	8 A	17.0	75.0	7.0	sw	121	10				
13	30	2 P	25	7 A	27.5	81.0	1.0	se	89	6	10 A	12 M	.03	½″
14	35	2 P	15	7 A	25.0	68.0	2.5	nw	257	25				
15	27	3 P	11	7 A	19.0	57.0	9.1	e	231	22				
16	37	6 P	25	0 A	31.0	83.0	0.0	se	101	7	10 A	11-30 A	.02	¼″
17	37	2 P	24	12 P	30.5	63.0	4.9	nw	180	14				
18	38	4 P	10	8 A	24.0	65.0	9.0	se	74	5				
19	47	8 P	13	7 A	30.0	87.0	0.0	nw	95	25	1-30 P	10 P	.88	T
20	46	1 A	36	10 P	41.0	68.0	3.0	sw	314	32				
21	39	3 P	30	7 A	34.5	73.0	1.5	sw	119	11				
22	32	2 P	28	5 A	30.0	91.0	0.0	nw	43	5	8 A	5-30 P	.20	2¼″
23	27	0 A	12	8 A	19.5	82.0	0.0	nw	94	14	8 P	10 P	.01	T
24	36	2 P	18	6 A	27.0	77.0	5.5	nw	133	22				
25	27	1 P	19	8 A	23.0	86.0	0.0	n	44	4	1-30 P	4 P	T	½″
26	42	4 P	25	0 A	33.5	91.0	0.5	nw	135	40	9-30 A	1-30 P	.65	
27	17	1 P	8	6 A	12.5	50.0	9.1	nw	521	45				
28	22	4 P	7	8 A	14.5	68.0	1.5	nw	67	6				
29	34	7 P	19	0 A	26.5	87.0	0.0	nw	126	32	7-30 A	11-30 A	.10	T
30	20	3 P	10	8 A	15.0	52.0	9.1	nw	463	25				
31	26	2 P	3	8 A	14.5	66.0	9.1	nw	117	8				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

December, 1934		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.50, 23rd	30.65	30.96, 1889
Minimum	29.06, 19th, 20th	29.25	28.85, 1915
Mean semi-daily	30.051	30.056	
Range	1.44	1.40	1.78, 1895; 1.01, 1892
Air Temperature			
Highest	64, 1st	54.5	65.5, 1908
Lowest	2, 9th	-2.3	-22.5, 1917
Mean	26.4	27.3	
Monthly range	62	56.8	
Highest mean daily	62, 1st		
Lowest mean daily	10, 11th		
Mean maximum	33.1		
Mean minimum	19.6		
Greatest daily range	34, 19th		
Least daily range	3, 2nd		
Precipitation			
Precipitation. In inches	2.99	3.47	7.77, 1901; 0.87, 1896
Snow, in inches	3.50	8.99	26.50, '02; t, 1891
Maximum precipitation in 24 hrs.	0.88, 19th		
Number of days on which .01 or more inches of rain fell	9	9	17, 1902; 4, 1892
Wind (miles)			
Total movement	5,295	4,726	6,694, 1925; 3,239, 1918
Greatest daily movement	521, 27th		
Least daily movement	43, 22nd		
Mean hourly velocity	7.1	6.4	
Maximum velocity for 5 min., (corrected to conform to 3 cup anemometer)	45, 27th	29	41, 1928
Wind (direction)			
Prevailing direction	nw	w	
North, days	2		
Northeast, days	0		
East, days	1		
Southeast, days	5		
South, days	0		
Southwest, days	3		
West, days	4		
Northwest, days	16		
Weather			
Mean relative humidity, per cent	72.7	77.2	87.1, 1919; 63, 1931
Mean cloudiness, per cent	56.0	53.4	71, 1929; 39, 1919
Number of clear days	11	8	15, 1890; 2, 1922, 1933
Number of fair days	6	10	16, 1909; 4, 1889, 1930, 1931
Number of cloudy days	14	13	19, 1911, 1922; 7, 1909, 1923
Number of hours bright sunshine	137.9	130.7	172, 1896; 63.1, 1933
Percent of possible hours of bright sunshine	48.7	46.0	
Thunder and Lightning			
Frosts			

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1933

ANNUAL SUMMARY

Annual, 1934		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.83, Feb. 28	30.81	31.05, 1920
Minimum	29.04, Jan. 28	28.95	28.47, 1914
Mean semi-daily	30.044	30.016	
Range	1.79	1.86	2.33, 1913; 1.38, 1933
Air Temperature			
Highest	93, June 29	95.8	104, 1911
Lowest	–22, Feb. 9	–12.1	–26.0, 1904
Mean	46.7	47.2	49.6, 1913; 44.0, 1904
Monthly range	115	108.0	
Highest mean daily	81.5, July 26		
Lowest mean daily	–10.0, Feb. 9		
Mean maximum	56.7	57.8	
Mean minimum	36.8	36.5	
Greatest daily range	42, Feb. 28		
Least daily range	3, Jan. 6 & 8, Dec. 2		
Precipitation			
Precipitation. In inches	45.51	43.49	57.05, 1897; 30.68, 1908
Snow, in inches	39.00	48.38	78.00, 1920; 24.50, 1919
Maximum precipitation in 24 hrs.	4.54, Sept. 16 & 17		
Number of days on which .01 or more inches of rain fell	119	123	144, 1902; 96, 1924
Wind (miles)			
Total movement	50,634	52,321	63,571, 1908; 36,257, 1894
Greatest daily movement	521 Dec. 27		
Least daily movement	32, Jan. 6		
Mean hourly velocity	5.8	6.0	
Maximum velocity for 5 min., (corrected to conform to 3 cup anemometer)	48, Feb. 20	35	48, 1932
Wind (direction)			
Prevailing direction	w	w	
North, days	19		
Northeast, days	11		
East, days	15		
Southeast, days	82		
South, days	33		
Southwest, days	28		
West, days	47		
Northwest, days	99		
Weather			
Mean relative humidity, per cent	66.5	75.8	82.9, 1927; 64.9, 1932
Mean cloudiness, per cent	54.6	50.8	60, ’98, ’01, ’02; 41, ’08, ’24
Number of clear days	138	109	150, 1932; 59, 1927
Number of fair days	101	128	182, 1912; 83, 1894
Number of cloudy days	126	128	179, ’01, ’02; 71, 1910
Number of hours bright sunshine	2393.5	2,356	2,838, 1924; 1,864, 1902
Percent of possible hours of bright sunshine	53.7	53.0	
Last Frost	May 13	M’y 12	Apr. 23, 1904; June 8, 1932
First Frost	Oct. 2	S’t 19	Aug. 22, ’94, ’95; Oct. 13, ’09
Last Snow	Mar. 24	Apr 14	Mar. 14, ’10; May 5, ’91, ’17
First Snow	Oct. 13	Nov 5	Oct. 10, ’25; Nov. 27, ’31

NOTE—The first column in the above summary gives observations made during the year. The second and third columns give the averages and extremes observed from 1889 to 1933.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 553 January, 1935

Meteorological Observations

FOR

JANUARY

1935

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	36	6 P	13	5 A	24.5	95.0	0.5	w	165	35	2-30 A	1-30 P	0.92	9.00
2	29	4 P	14	8 A	21.5	67.0	8.0	w	351	35				
3	45	3 P	11	7 A	28.0	70.0	9.1	se	128	40				
4	12	1 P	–4	12 P	4.0	49.0	9.1	w	364	20				
5	32	12 P	–11	6 A	10.5	68.0	9.1	se	39	12				
6	44	12 M	32	0 A	38.0	86.0	3.0	se	182	10				
7	48	3 P	40	8 A	44.0	98.0	0.0	se	101	10				
8	48	6 P	38	10 A	43.0	98.0	0.0	se	89	12	9 P	12 P	0.21	
9	45	3 P	42	8 A	43.5	100.0	0.0	se	123	14	1 A	12 P	0.89	
10	38	7 P	35	8 A	36.5	98.0	0.0	n	67	14	0 A	8 A	0.72	
11	37	1 P	31	6 A	34.0	66.0	8.0	nw	226	30				
12	25	1 P	22	8 A	23.5	59.0	7.5	nw	338	30				
13	18	12 M	9	3 A	13.5	68.0	0.0	nw	82	7	3P	12 P	0.32	3.50
14	20	8 A	12	7 A	16.0	65.0	5.5	nw	270	40	0 A	3-30 A	0.10	0.50
15	25	2 P	6	8 A	15.5	59.0	7.0	w	176	13				
16	25	4 P	4	8 A	14.5	78.0	7.0	sw	39	3				T
17	30	12 P	2	1 A	16.0	88.0	0.0	sw	86	12	7-30 A	6 P	0.29	3.00
18	34	3 A	10	12 P	22.0	52.0	6.5	w	406	40				
19	22	3 P	–2	6 A	10.0	61.0	7.5	se	149	15				
20	28	12 P	4	0 A	16.0	93.0	0.0	e	37	7	7-30 A	7 P	0.64	6.00
21	33	6 P	25	2 A	29.0	73.0	0.0	e	77	6	10 A	7 P	0.24	
22	38	6 A	20	12 P	29.0	65.0	0.5	e	177	17			T	
23	20	0 A	14	8 A	17.0	73.0	0.0	e	185	20	4 P	12 P	0.47	4.50
24	14	0 A	–6	12 P	4.0	74.0	5.5	e	460	30	0 A	1-30 A	0.08	1.00
25	16	3 P	–12	8 A	2.0	64.0	6.0	nw	138	20	10-30 P	12 P	0.03	0.50
26	26	1 P	11	12 P	18.5	79.0	7.5	nw	199	22	0 A	4-30 A	0.05	0.50
27	7	3 P	–14	12 P	–3.5	65.0	9.7	nw	173	12				
28	14	12 P	–21	5 A	–3.5	71.0	7.2	se	60	10				
29	28	3 P	10	12 P	19.0	81.0	3.0	nw	96	20				T
30	12	3 P	–5	8 A	3.5	55.0	9.9	nw	227	13				
31	13	4 P	–12	8 A	0.5	54.0	9.9	nw	147	18				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

January, 1935		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.81, 5th	30.71	31.00, 1927
Minimum	29.41, 1st	29.18	28.55, 1913
Mean semi-daily	30.006	30.07	
Range	1.40	1.54	2.18, 1913; 0.97, 1896
Air Temperature			
Highest	48, 7th, 8th	50.4	66.0, 1932
Lowest	–21, 28th	–7.4	–26.0, 1904
Mean	19.0	23.8	
Monthly range	69	58.2	
Highest mean daily	44, 7th		
Lowest mean daily	–3.5, 27th, 28th		
Mean maximum	27.8		
Mean minimum	10.3		
Greatest daily range	43, 5th		
Least daily range	3, 9th, 10th, 12th		
Precipitation			
Precipitation. In inches	4.96	3.42	7.15, 1898; 1.07, 1896
Snow, in inches	28.50	13	33, 1898, 1923; 1.75, 1911
Maximum precipitation in 24 hrs	0.92, 1st		
Number of days on which .01 or more inches of rain fell	13	11	18, 1923; 4, 1889
Wind (miles)			
Total movement	5357	5,068	7,770, 1908; 2,896, 1895
Greatest daily movement	460, 24th		
Least daily movement	37, 20th		
Mean hourly velocity	7.2	6.8	
Maximum velocity for 5 min.,	40, 3rd, 14th, 18th	30	41, 1911
(corrected to conform to 3 cup anemometer)			
Wind (direction)			
Prevailing direction	wnw	wnw	
North, days	1		
Northeast, days	0		
East, days	5		
Southeast, days	8		
South, days	0		
Southwest, days	2		
West, days	5		
Northwest, days	10		
Weather			
Mean relative humidity, per cent	73.3	78.2	87.7, 1920; 63.4, 1932, 1933
Mean cloudiness, per cent	59.0	54	78, 1932; 37, 1908
Number of clear days	14	8	16, 1922; 2, 1914
Number of fair days	6	10	18, 1890, 1926; 3, 1916
Number of cloudy days	11	13	22, 1923, 1931; 4, 1920
Number of hours bright sunshine	147	140	214, 1920; 74.2, 1932
Percent of possible hours of bright sunshine	50	47.6	
Thunder and Lightning			
Frosts			

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1934.

REMARKS

The weather during January was extremely cold, with more snow than usual. The mean temperature for the month was 19 degrees, while the normal is 23.8 degrees. This is the lowest mean temperature for January since 1920 when the mean was 15.2 degrees. The lowest temperature was –21 degrees on the 28th. Only three times since this station was established have we had lower temperatures in January. In 1899 it reached –21.5; in 1904, –26; and in 1907 it reached –23.5 degrees.

The domestic heating load for the current heating season to the end of January is 3838 degree-days. The normal for this period is 3773. Last winter the heating load for the same period was 4026 degree-days. In other words, the fuel required for the present year is about 2 per cent more than normal and 5 per cent less than last year.

The total snowfall for the month was 28.5 inches. This has been exceeded only twice in January since 1889. In 1898 and 1923 the snowfall was 33 inches in January. The normal snowfall for January is 13 inches. The total precipitation for the month was 4.96 inches, the normal being 3.42 inches. The wind movement was somewhat higher than usual with no high gales. The prevailing direction was west northwest. There were 147 hours of bright sunshine, which is 7 hours greater than normal.

Dr. J. K. Shaw makes the following comments: "The low temperatures almost equaling those of last year have entirely destroyed the fruit buds in the college peach orchards. How general this condition is over the state is unknown but it is certain that the peach crop of Massachusetts will be reduced almost, if not quite, to nothing. What the effect has been on fruit trees is as yet unknown, but it is to be feared that we may experience more or less killing or injury to all tender fruit trees."

A. H. MADDEN, *Observer* C. I. GUNNESS, *Meteorologist*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series | Bulletin No. 554 | February, 1935

Meteorological Observations

FOR

FEBRUARY

1935

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	22	4 P	-12	9 A	5.0	66	10.0	se	81	15				
2	35	4 P	17	0 A	26.0	67	1.5	s	119	10				
3	39	1 P	28	3 A	33.5	77	0.8	nw	91	8				
4	32	0 A	10	12 P	21.0	69	4.3	nw	214	25				
5	16	3 P	3	12 P	9.5	58	1.0	n	177	13				
6	23	4 P	-1	6 A	11.0	57	10.1	n	219	20				
7	28	5 P	-11	7 A	8.5	70	10.2	w	35	7				
8	34	2 P	12	1 A	23.0	82	1.0	s	78	6				T
9	41	1 P	33	12 P	37.0	85	0.5	se	140	13	0 A	6-30 A	.17	0.50
10	33	0 A	22	7 A	27.5	71	1.0	w	103	12				
11	35	1 P	10	12 P	22.5	67	10.4	w	162	20				
12	26	4 P	-2	8 A	12.0	64	8.4	s	89	10				
13	36	3 P	13	4 A	24.5	69	7.6	nw	81	12				
14	34	12 P	12	6 A	23.0	91	0.0	nw	55	7	3-30 P	12 P	.11	
15	44	2 P	31	7 A	37.5	90	3.0	se	99	9	0 A	7 A	.82	
16	43	1 P	34	12 P	38.5	72	0.7	nw	120	20				T
17	34	3 P	28	12 P	31.0	98	0.0	nw	71	13	4-30 A	4-30 P	.43	3.75
18	36	4 P	18	7 A	27.0	64	4.5	w	175	13				
19	39	1 P	22	12 P	30.5	74	0.5	s	150	40				
20	38	1 P	13	7 A	25.5	71	7.0	se	141	20				
21	31	2 P	14	7 A	22.5	55	10.8	w	237	25				
22	33	4 P	21	8 A	27.0	55	6.5	n	112	9				
23	28	2 P	19	7 A	23.5	95	0.0	nw	125	15	2-30 A	10-30 P	.43	3.00
24	37	3 P	21	7 A	29.0	77	4.0	se	124	10				
25	48	2 P	27	7 A	37.5	68	5.5	se	193	15				
26	42	0 A	12	12 P	27.0	81	0.0	nw	175	20	5 A	12 P	.38	1.25
27	22	2 P	7	12 P	14.5	64	7.0	w	312	22	0 A	4 A	.16	0.75
28	29	2 P	4	3 A	16.5	71	7.7	w	186	25				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

February, 1935		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.78, 1st	30.63	31.05, 1920
Minimum	29.49, 3rd	29.20	28.56, 1895
Mean semi-daily	30.048	30.03	
Range	1.29	1.43	1.89, 1900,1908; .88,1913,1931
Air Temperature			
Highest	48, 25th	50.3	65.0, 1930
Lowest	−12, 1st	−7.9	−22.5, 1918
Mean	24.0	23.5	
Monthly range	60	58.2	
Highest mean daily	38.5, 16th		
Lowest mean daily	5.0, 1st		
Mean maximum	33.5		
Mean minimum	14.5		
Greatest daily range	39, 7th		
Least daily range	17th		
Precipitation			
Precipitation. In inches	2.50	3.35	8.12, 1900; 0.62, 1901
Snow, in inches	9.25	14.27	48.75, 1893; 2.5, 1912
Maximum precipitation in 24 hrs	.93,14th		
Number of days on which .01 or more inches of rain fell	7	10	15, 1893, 1920; 4, 1901
Wind (miles)			
Total movement	3864	4,833	6,445, 1896; 3,438, 1892
Greatest daily movement	312, 27th		
Least daily movement	35, 7th		
Mean hourly velocity	5.9	7.1	
Maximum velocity for 5 min., (corrected to conform to 3 cup anemometer)	40, 19th	29	45, 1933
Wind (direction)			
Prevailing direction	w	wnw	
North, days	3		
Northeast, days	0		
East, days	0		
Southeast, days	6		
South, days	4		
Southwest, days	0		
West, days	7		
Northwest, days	8		
Weather			
Mean relative humidity, per cent	72.4	77.9	90.0, 1889; 66.8, 1902
Mean cloudiness, per cent	56.0	50.5	66,1890, 1927; 31, 1905
Number of clear days	7	10	17, 1924; 2, 1927
Number of fair days	8	8	16, 1920; 3, 1890
Number of cloudy days	13	10	16, 1894; 2, 1920
Number of hours bright sunshine	124	160	221, 1924; 110, 1927
Percent of possible hours of bright sunshine	42	54.1	
Thunder and Lightning			
Frosts			

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 18 9 to 1928. The third column gives extremes observed from 1889 to 1934.

REMARKS

The weather during the month of February was not far from normal in most respects. The temperature was slightly higher than usual with a mean of 24 degrees. The normal mean is 23.5 degrees. The lowest temperature was –12 degrees on the 1st. It will be recalled that the mean temperature during February, 1934, was 11.6 degrees with a minimum of –22 degrees. The heating load for the present winter to the end of February is 4986 degree-days. The normal for this period is 4935 degree-days. In the winter of 1933-34 the number of degree-days for the same period was 5522. The total precipitation during the month was only 2.5 inches, the normal being 3.35 inches. The snowfall for the month was 9.25 inches. The usual snowfall in February is 14.27 inches. There were only 124 hours of bright sunshine which is 36 hours less than usual for February. The wind movement was 3864 miles which is 1000 miles less than usual. The prevailing direction was West.

A. H. MADDEN, *Observer* C. I. GUNNESS, *Meteorologist*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 555 March, 1935

Meteorological Observations

FOR

MARCH

1935

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine.	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	34	4 P	7	7 A	20.5	70	8.2	se	166	15				
2	44	2 P	26	7 A	35.0	77	1.5	se	110	9				
3	40	3 P	25	12 P	32.5	62	11.3	nw	307	40				
4	37	2 P	17	6 A	27.0	65	7.5	se	100	15				
5	42	7 P	32	0 A	37.0	90	0.0	se	107	9				
6	58	1 P	34	7 A	46.0	75	10.0	w	143	22				
7	33	3 P	25	7 A	29.0	69	1.0	w	160	13				T
8	32	4 P	17	6 A	24.5	61	9.2	n	233	22				T
9	37	4 P	13	6 A	25.0	52	11.6	se	174	22				
10	39	3 P	23	7 A	31.0	76	1.9	se	182	17	4-30 P	5-30 P	.04	
11	56	4 P	39	0 A	47.5	85	0.5	se	115	10	8 P	10-30 P	.09	
12	48	0 A	30	12 P	39.0	76	0.0	w	177	22	10 P	12 P	.08	1.00
13	35	12 M	30	0 A	32.5	70	6.5	w	237	25	0 A	8 A	.32	3.00
14	39	1 P	16	6 A	27.5	73	6.5	nw	74	6				T
15	34	4 P	21	6 A	27.5	72	1.5	se	97	13				
16	68	4 P	31	7 A	49.5	68	7.3	s	114	8				
17	61	1 P	28	12 P	44.5	72	2.8	se	269	45				
18	41	4 P	20	7 A	30.5	49	12.0	nw	234	30				
19	38	8 P	28	5 A	33.0	89	0.0	se	171	13				T
20	58	3 P	31	6 A	44.5	72	11.0	nw	151	17				
21	39	2 A	28	11 P	33.5	91	0.0	n	70	9	9-30 A	11-30 A	.06	T
22	57	3 P	32	0 A	44.5	42	12.2	nw	343	40				
23	52	5 P	29	6 A	40.5	74	1.5	se	141	30	10-30 P	11 P	.03	
24	52	3 P	36	12 P	44.0	63	12.2	w	390	45				
25	49	4 P	30	4 A	39.5	54	10.1	nw	92	10				
26	43	4 P	23	6 A	33.0	51	12.3	w	242	30				
27	50	4 P	24	6 A	37.0	48	12.4	nw	197	25				
28	45	2 P	26	6 A	35.5	76	1.5	e	112	15	1 P	8-30 P	.81	
29	55	4 P	29	5 A	42.0	56	11.8	w	180	25	10 P	11-30 P	.05	
30	45	4 P	32	12 P	38.5	59	8.0	nw	293	30				
31	47	2 P	29	6 A	38.0	64	5.7	se	81	8				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

March, 1935		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.71, 9th	30.60	30.96, 1904
Minimum	29.48, 13th	29.26	28.47, 1914
Mean semi-daily	30.06	30.02	
Range	1.23	1.35	2.10, 1914; 0.85, 1915
Air Temperature			
Highest	68, 16th	63.9	79.5, 1907, 1921
Lowest	7, 1st	5.7	-7.5, 1906
Mean	35.8	34.2	
Monthly range	61	58.2	
Highest mean daily	49.5, 16th		
Lowest mean daily	20.5, 1st		
Mean maximum	45.4		
Mean minimum	26.2		
Greatest daily range	37, 16th		
Least daily range	5, 13th		
Precipitation			
Precipitation. In inches	1.48	3.68	7.13, 1899; 0.12, 1915
Snow, in inches	4.00	8.11	27, 1899; 0, 1921
Maximum precipitation in 24 hrs. 28th	0.81		
Number of days on which .01 or more inches of rain fell	8	11	17, 1890, 1913; 3, 1915
Wind (miles)			
Total movement	5462	5,738	7,628, 1932; 3,006, 1905
Greatest daily movement	390, 24th		
Least daily movement	70, 21st		
Mean hourly velocity	7.3	7.7	
Maximum velocity for 5 min.,	45, 17th, 24th	29	48, 1932
Wind (direction)			
Prevailing direction	sw	wnw	
North, days	2		
Northeast, days	0		
East, days	1		
Southeast, days	12		
South, days	1		
Southwest, days	0		
West, days	7		
Northwest, days	8		
Weather			
Mean relative humidity, per cent	67.8	75.0	86.8, 1916; 59.5, 1932
Mean cloudiness, per cent	47.0	51.0	68, 1901; 27, 1915
Number of clear days	13	11	22, 1924; 3, 1901
Number of fair days	6	9	17, 1900; 4, 1895
Number of cloudy days	12	11	21, 1901; 1, 1915
Number of hours bright sunshine	198	201	292, 1924; 93, 1901
Percent of possible hours of bright sunshine	53	54.2	
Thunder and Lightning			
Frosts			

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1934.

REMARKS

The weather during March was somewhat warmer than usual, and less rain and snow fell than normal. The mean temperature for the month was 35.8 degrees, which is 1.6 degrees higher than normal. The highest temperature was 68 degrees on the 16th; the lowest, 7 degrees on the 1st. The total heating load to the end of March is 5892 degree-days, the normal being 5890. Last year the heating load was 6580 degree-days to the end of March. The total precipitation during the month was 1.48 inches, the normal being 3.68 inches. Four inches of snow fell during March, while the normal snowfall for this month is 8.11 inches. There were 198 hours of bright sunshine which is practically the normal amount. The highest wind velocity was 45 miles per hour which was recorded on both the 17th and 24th.

Dr. J. K. Shaw makes the following comments:

> Reports and observations indicate that the peach crop is practically destroyed by the winter cold. Some orchards located on especially favorable sites will have a partial crop. Most of the few peaches will be in the eastern part of the State. There seems to be some injury to the trees, but it is believed that injury will be much less than last year. There seems to be no severe damage to apple trees, although it is reasonable to expect that some trees badly weakened from the cold of the preceding winter will go out. Trees that made considerable recovery last summer do not seem to have suffered severely.

A. H. Madden, *Observer* C. I. Gunness, *Meteorologist*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 556 April, 1935

Meteorological Observations

FOR

APRIL

1935

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	52	2 P	35	6 A	43.5	62	0.4	se	80	10	4 P	8-30 P	.01	
2	48	4 P	36	6 A	42.0	78	2.0	nw	169	32				
3	46	4 P	29	12 P	37.5	52	10.4	nw	286	30				T
4	51	5 P	23	6 A	37.0	60	6.7	nw	90	10				
5	37	12 M	31	12 P	34.0	71	0.0	n	96	12	1 P	12 P	.05	T
6	48	4 P	29	7 A	38.5	57	12.9	n	154	22	0 A	3-30 A	.02	T
7	51	4 P	27	6 A	39.0	55	10.3	n	240	20				
8	51	12 M	31	4 A	41.0	56	9.3	ne	225	32				
9	42	10 A	35	6 P	38.5	81	0.0	n	286	28	8-30 A	10 P	.35	T
10	47	4 P	37	7 A	42.0	72	2.0	n	294	28				
11	54	1 P	32	3 A	43.0	63	8.5	ne	209	22				
12	38	1 A	34	8 A	36.0	91	0.0	n	125	12	7 A	1-30 P	.48	T
13	41	4 P	34	0 A	37.5	63	0.0	nw	217	15	7-30 A	8 P	.63	
14	45	11 P	36	5 A	40.5	78	2.0	nw	146	28				
15	63	12 M	34	6 A	48.5	62	8.3	se	158	22				
16	37	3 P	32	12 P	34.5	71	0.0	nw	251	25			T	
17	41	12 M	30	3 A	35.5	80	0.0	nw	138	32	1 A	4 P	.20	1.00
18	54	4 P	27	6 A	40.5	69	6.4	nw	216	40				
19	64	3 P	39	5 A	51.5	61	12.0	nw	186	15				
20	64	3 P	35	6 A	49.5	61	11.0	w	139	22				
21	68	2 P	37	5 A	52.5	55	11.9	nw	62	18				
22	61	12 M	44	6 A	52.5	70	7.0	nw	161	20	3-30 P	10-30P	.32	
23	59	12 M	40	3 A	49.5	70	5.5	nw	92	11			T	
24	63	12 M	41	12 P	52.0	73	4.5	nw	130	28			T	
25	58	2 P	33	5 A	45.5	59	13.5	nw	176	40				
26	69	4 P	30	4 A	49.5	47	11.6	nw	183	25				
27	86	8 P	53	6 A	69.5	50	14.0	s	111	18				
28	75	3 P	50	12 P	62.5	61	7.8	nw	257	40	3 A	4 A	.02	
29	73	3 P	42	6 A	57.5	62	11.0	se	128	15				
30	56	4 P	42	12 P	49.0	81	2.0	nw	192	30	2-30 A	1 P	46	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

April, 1935		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.28, 11th	30.48	30.71, 1911
Minimum	29.35, 17th	29.41	28.99, 1907, 1929
Mean semi-daily	29.896	29.99	
Range	0.93	1.08	1.52, 1930; 0.72, 1919
Air Temperature			
Highest	86, 27th	79.5	88.5, 1896
Lowest	23, 4th	21.6	8.5, 1923
Mean	45.0	45.8	
Monthly range	63	57.8	
Highest mean daily	69.5, 27th		
Lowest mean daily	34.0, 5th		
Mean maximum	54.7		
Mean minimum	35.3		
Greatest daily range	39, 26th		
Least daily range	4, 12th		
Precipitation			
Precipitation. In inches	2.54	3.27	6.89, 1929; 0.76, 1892
Snow, in inches	1.00	2.32	11, 1891; 0, 1910
Maximum precipitation in 24 hrs.	0.63, 13th		
Number of days on which .01 or more inches of rain fell	10	11	18, 1909; 3, 1892
Wind (miles)			
Total movement	5197	5,436	8,208, 1908; 3,853, 1917
Greatest daily movement	294, 10th		
Least daily movement	62, 21st		
Mean hourly velocity	7.2	7.5	
Maximum velocity for 5 min.,	40, 18th, 25th, 28th	29	39, 1916, 1931, 1932, 1934
Wind (direction)			
Prevailing direction	nnw	wnw	
North, days	6		
Northeast, days	2		
East, days	0		
Southeast, days	3		
South, days	1		
Southwest, days	0		
West, days	1		
Northwest, days	17		
Weather			
Mean relative humidity, per cent	65.7	69.6	81.2, 1916; 54.5, 1892
Mean cloudiness, per cent	65.2	49.2	75, 1901; 34, 1925, 1927
Number of clear days	11	11	19, 1911; 3, 1898, 1902
Number of fair days	11	10	18, 1915; 2, 1894, 1901
Number of cloudy days	8	9	22, 1901; 3, 1899, 1924
Number of hours bright sunshine	191	221	296, 1911; 103, 1901
Percent of possible hours of bright sunshine	47.5	55	
Thunder and Lightning			
Frosts after the 15th:	17th, 18th, 26th		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1934.

REMARKS

The weather during the month of April was slightly colder than usual, with the exception of the last ten days of the month when the weather was almost continuously warm and pleasant. The mean temperature for the month was 45 degrees, the normal being 45.8. The highest temperature was 86 degrees on the 27th and the lowest, 23 on the 4th. The normal maximum temperature for April is 79.5 degrees and the normal minimum, 21.6 degrees. The highest temperature observed in April at this station is 88.5 degrees in 1896. The total heating load for the current year to the end of April is 6487, the normal being 6466. Last year the heating load for this period was 7145. The total precipitation during the month was 2.54 inches; the normal, 3.27 inches. The total precipitation since the first of the year is now 11.48 inches. The normal for this period is 13.72 inches. There was 1 inch of snow on the 17th. The greatest snowfall at the latest date in the spring was 6 inches on April 12 and 13, 1933. There was less sunshine than usual, with 191 hours. The normal for the month is 221 hours. The total wind movement was 5197 miles with a normal of 5436 miles. The highest velocity was 40 miles an hour on the 18th, 25th and 28th. This is the highest wind velocity recorded at the station for the month of April.

A. H. Madden, Observer C. I. Gunness, Meteorologist

MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 557 May, 1935

Meteorological Observations

FOR

MAY

1935

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	53	4 P	39	4 A	46.0	63	4.0	nw	416	45				
2	47	3 P	35	5 A	41.0	61	0.0	w	109	15				
3	48	1 P	35	5 A	41.5	68	0.0	ne	125	18	11-30 A	8 P	.27	
4	57	5 P	37	7 A	47.0	74	4.5	ne	104	10	2-30 A	9 A	.28	
5	61	1 P	34	6 A	47.5	61	9.2	se	145	22	7-30 P	12 P	.01	
6	61	3 P	43	0 A	52.0	67	2.0	nw	151	20	1 A	4 A	.03	
7	52	3 P	46	6 A	49.0	91	0.0	ne	102	17	12 M	9-30 P	.88	
8	66	6 P	44	5 A	55.0	61	4.4	nw	140	18				
9	71	3 P	37	6 A	54.0	54	14.4	s	149	25				
10	66	5 P	48	3 A	57.0	84	3.0	se	186	20	5-30 A	9-30 P	.53	
11	65	3 P	44	5 A	54.5	53	10.4	w	208	30				
12	70	5 P	43	2 A	56.5	49	14.5	n	142	15				
13	73	6 P	40	6 A	56.5	56	9.7	se	68	10				
14	68	4 P	48	12 P	58.0	66	3.8	nw	169	28				
15	60	5 P	41	5 A	50.5	50	6.0	nw	255	22				
16	68	3 P	32	6 A	50.0	66	14.0	s	88	13				
17	68	6 P	40	6 A	54.0	54	7.4	nw	101	25				
18	62	3 P	35	6 A	48.5	46	14.7	w	227	30				
19	60	4 P	43	7 A	51.5	48	13.6	nw	240	30				
20	68	4 P	41	5 A	54.5	46	8.0	w	204	32				
21	69	1 P	40	5 A	54.5	55	2.0	se	104	15				
22	64	2 P	40	5 A	52.0	43	14.8	nw	146	22				
23	59	6 P	39	5 A	49.0	67	4.0	se	61	9				
24	66	6 P	34	6 A	50.0	52	8.8	w	73	8				
25	74	4 P	36	6 A	55.0	51	9.5	nw	65	15				
26	80	4 P	42	6 A	61.0	50	14.9	se	66	10				
27	85	4 P	44	6 A	64.5	54	11.4	sw	106	14				
28	81	1 P	59	4 A	70.0	63	1.0	se	137	32				
29	83	2 P	62	5 A	72.5	65	1.5	se	168	15	2-30 P	4-30 P	.03	
30	80	5 P	49	5 A	64.5	63	10.8	se	69	11			T	
31	77	12 M	58	12 P	67.5	73	1.7	se	111	25	12-30 P	12 P	.14	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

May, 1935		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.37, 5th	30.38	30.55, 1895
Minimum	29.51, 21st	29.51	29.16, 1893
Mean semi-daily	29.954	29.95	
Range	0.86	.88	1.21, 1929; 0.60, 1899
Air Temperature			
Highest	85, 27th	85.5	94.5, 1911
Lowest	32, 16th	30.8	24.0, 1900
Mean	54.4	56.8	
Monthly range	53	54.6	
Highest mean daily	72.5, 29th		
Lowest mean daily	41.0, 2nd		
Mean maximum	66.5		
Mean minimum	42.2		
Greatest daily range	41, 27th		
Least daily range	6, 7th		
Precipitation			
Precipitation. In inches	2.17	3.63	7.44, 1931; 0.48, 1903
Snow, in inches			
Maximum precipitation in 24 hrs.	0.88, 7th		
Number of days on which .01 or more inches of rain fell	8	12	20, 1901; 5, 1903
Wind (miles)			
Total movement	4435	4,540	5,946, 1907; 2,180, 1894
Greatest daily movement	416, 1st		
Least daily movement	61, 23rd		
Mean hourly velocity	6.0	6.1	
Maximum velocity for 5 min.,	45, 1st	25	35, 1912, 1929, 1934
Wind (direction)			
Prevailing direction	w	w	
North, days	1		
Northeast, days	3		
East, days	0		
Southeast, days	10		
South, days	2		
Southwest, days	1		
West, days	5		
Northwest, days	9		
Weather			
Mean relative humidity, per cent	60	70.7	83.9, 1927; 53.8, 1932
Mean cloudiness, per cent	55	51.5	70, 1901; 30, 1923
Number of clear days	11	10	20, 1923; 0, 1927
Number of fair days	9	11	17, 1907, 1926; 5, 1923
Number of cloudy days	11	10	20, 1927; 3, 1903, 1922
Number of hours bright sunshine	224	250.1	334, 1922; 137, 1927
Percent of possible hours of bright sunshine	50	55.2	
Thunder and Lightning	10th, 31st		
Frosts	16th, 24th, 25th	12th	June 8, 1932; Apr. 23, 1904.

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1934.

REMARKS

The weather during the month of May was dry and cold. The total rainfall during the month was 2.17 inches, the normal being 3.63 inches. No rain fell on the 18-day period from the 11th to the 28th. This is the longest continuous period without rain in May at this station. There have been many years when we have had less rain in April and May than in the current year. In 1932 only 2.33 inches of rain fell in April and 1.67 inches in May. In 1903 no rain fell during the last half of April and only .48 inches in May. The total rainfall for 1935 to date is 13.65 inches. The normal for this period is 17.35 inches. The mean temperature for the month was 54.4 degrees, the normal being 56.8 degrees. This is the lowest May temperature since 1927 when the mean was 53.9 degrees. The highest temperature was 85 degrees on the 27th and the lowest 32 degrees on the 16th. This is the lowest temperature recorded at this late date since 1917 when a temperature of 30 degrees was reached on May 16. The heating load for the current season from September 15 to May 31 was 6822 degree-days. The normal for this period is 6720 degree-days. In 1933-34 the heating load was 7321 degree-days. There were 224 hours of bright sunshine, the normal for May being 250 hours. The total wind movement was 4435 miles and the maximum velocity was 45 miles per hour on the 1st.

Dr. J. K. Shaw reports as follows on the fruit prospects for the state:

> "The blossoming season of most tree fruits was about a week later and much longer than usual. This was due to cool weather shortly before and during the time of bloom. While frosts were reported from some places, no injury to tree fruits has been seen. The cool weather is unfavorable for heavy set of fruit but much sunshine and freedom from winds favoring the flight of bees are likely to offset this and a good set of fruit is indicated except for peaches, the fruit buds of which were largely destroyed by winter cold."

A. H. Madden, *Observer* C. I. Gunness, *Meteorologist*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 558 June, 1935

Meteorological Observations

FOR

JUNE

1935

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	68	6 P	51	12 P	59.5	74	1.0	ne	159	25	0 A	1 A	.07	
2	81	5 P	44	6 A	62.5	57	15.1	n	69	12				
3	81	3 P	49	6 A	65.0	52	8.5	se	134	13				
4	65	0 A	57	12 P	61.0	81	0.0	se	146	12	2-30 P	12 P	.38	
5	72	3 P	57	4 A	64.5	77	2.1	se	102	18	0 A	1 A	.03	
6	68	5 P	57	6 A	62.5	87	1.3	se	91	9	5 P	6-30 P	.05	
7	77	3 P	57	6 A	67.0	79	4.5	se	134	17			T	
8	65	3 P	57	3 A	61.0	81	0.0	s	74	7	1-30 P	12 P	.13	
9	59	0 A	55	9 A	57.0	91	0.0	n	165	25	0 A	7-30 P	1.74	
10	61	2 P	54	5 A	57.5	90	0.0	n	168	17	6 A	10 A	.43	
11	75	7 P	53	4 A	64.0	68	1.5	nw	109	17			T	
12	84	6 P	57	6 A	70.5	57	15.3	s	86	13				
13	87	4 P	52	5 A	69.5	57	15.3	w	61	11				
14	84	5 P	56	5 A	70.0	51	15.3	se	85	13				
15	87	11 A	58	12 P	72.5	71	7.0	se	197	25	8-30 A	12-30 P	.14	
16	77	3 P	52	3 A	64.5	57	15.3	se	111	10				
17	85	3 P	57	4 A	71.0	76	9.0	ne	161	39	10 A	12 P	1.34	
18	60	0 A	55	8 A	57.5	81	0.0	w	152	17	0 A	9 A	.19	
19	62	3 P	53	6 A	57.5	77	0.0	nw	95	13	3 A	12 P	.35	
20	70	6 P	53	1 A	61.5	89	0.2	sw	91	9	0 A	1 A	.03	
21	78	1 P	52	5 A	65.0	73	2.5	n	89	13			T	
22	78	3 P	58	12 P	68.0	83	1.9	se	158	17	12-30 A	6-30 P	.44	
23	75	1 P	53	5 A	64.0	71	8.3	sw	61	25	5 P	6 P	.09	
24	77	3 P	56	5 A	66.5	73	9.2	w	64	11				
25	77	1 P	57	12 P	67.0	65	7.5	n	54	25				
26	83	3 P	53	5 A	68.0	61	10.8	sw	42	5				
27	83	3 P	58	5 A	70.5	70	6.0	s	100	17	6 P	7 P	.09	
28	86	5 P	64	4 A	75.0	71	10.8	sw	62	8				
29	88	2 P	60	5 A	74.0	67	3.3	se	72	9				
30	86	4 P	64	5 A	75.0	68	7.3	nw	105	20				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

June, 1935		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.22, 2nd	30.31	30.54, 1889
Minimum	29.48, 17th	29.56	29.24, 1902
Mean semi-daily	29.947	29.961	
Range	0.74	.75	1.27, 1902; 0.52, 1916
Air Temperature			
Highest	88, 29th	91.1	101.0, 1919
Lowest	44, 2nd	40.0	34.0, 1891
Mean	65.6	65.4	
Monthly range	44	51.2	
Highest mean daily	75, 28th, 30th		
Lowest mean daily	57, 9th		
Mean maximum	76		
Mean minimum	55		
Greatest daily range	37, 2nd		
Least daily range	4, 9th		
Precipitation			
Precipitation. In inches	5.50	3.54	9.68, 1922; 0.76, 1908
Snow, in inches			
Maximum precipitation in 24 hrs.	1.74, 9th		
Number of days on which .01 or more inches of rain fell	15	10	17, 1922; 4, 1908
Wind (miles)			
Total movement	3197	3,584	4,571, 1908; 1,409, 1906
Greatest daily movement	197, 15th		
Least daily movement	42, 26th		
Mean hourly velocity	4.4	5.0	
Maximum velocity for 5 min.,	39, 17th	23	40, 1932
Wind (direction)			
Prevailing direction	s	wsw	
North, days	5		
Northeast, days	2		
East, days	0		
Southeast, days	10		
South, days	3		
Southwest, days	4		
West, days	3		
Northwest, days	3		
Weather			
Mean relative humidity, per cent	72	73.9	85.9, 1922; 63.2, 1932
Mean cloudiness, per cent	54	50.1	71, 1903; 28, 1908
Number of clear days	7	9	22, 1908; 1, 1907, 1926
Number of fair days	8	13	23, 1912, 4, 1895; 1903
Number of cloudy days	15	8	22, 1903; 1, 1923
Number of hours bright sunshine	179	257.4	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	40	56.2	
Thunder and Lightning	15th, 17th, 22nd, 23rd, 27th		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928. The third column gives extremes observed from 1889 to 1934.

REMARKS

The weather during June was marked with a large amount of rain, with a corresponding small amount of sunshine and clear weather. Rain fell on 15 days with a total of 5.50 inches. The normal rainfall for June is 3.54 inches. The total rainfall since January 1 is 19.15 inches, while the normal rainfall for this period is 20.89 inches. There were 15 days in June classified as cloudy, while normally we have 8 cloudy days in this month. The mean temperature for the month was 65.6 degrees which is 0.3 degree higher than normal. The maximum temperature was 88 degrees on the 29th and the lowest was 44 degrees on the 2nd. The usual range of temperature in June is from 40 degrees to 91.1 degrees. There were only 179 hours of bright sunshine, whereas the normal sunshine for June is 257 hours. The total wind movement for the month was 3197 miles, the prevailing direction being south. The maximum velocity was 39 miles per hour on the 17th. Dr. Shaw of the Department of Pomology gives the following report:

> "The cool weather during the blossoming season seems not to have been very injurious to the set in apples. The past severe winters show their effect in prospective light crops of Baldwins and Gravensteins. Other important varieties promise normal crops or better. The peach crop will be very light and scattered. Many plum varieties will have light crops due to the severe winter cold of the past two years. Abundant rain has assured a heavy crop of strawberries but there has been some loss from rot of the berries."

C. L. Lothrop, *Observer* C. I. Gunness, *Meteorologist*

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 559 July, 1935

Meteorological Observations

FOR

JULY

1935

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	80	4 P	59	5 A	69.5	50	15.3	n	124	18				
2	79	5 P	51	5 A	65.0	52	15.1	nw	88	8				
3	81	4 P	52	5 A	66.5	69	15.3	s	125	13				
4	83	1 P	57	4 A	70.0	71	15.2	se	147	10				
5	90	3 P	63	6 A	76.5	68	15.1	s	111	13				
6	95	3 P	69	4 A	82.0	71	13.2	s	111	15				
7	74	0 A	57	12 P	65.5	90	0.0	e	131	13	4 A	12 P	.33	
8	78	1 P	57	3 A	67.5	90	3.8	n	114	13	0 A	6 P	.91	
9	78	1 P	68	5 A	73.0	83	2.2	ne	101	14	8 A	8 P	.01	
10	85	2 P	68	5 A	76.5	74	8.6	sw	81	7	8-30 P	9 P	.01	
11	91	5 P	70	4 A	80.5	64	15.1	nw	54	6				
12	93	3 P	66	5 A	79.5	72	14.0	sw	103	22	5 P	12 P	.59	
13	85	4 P	66	12 P	75.5	63	15.1	w	104	12				
14	86	4 P	58	5 A	72.0	64	13.5	sw	73	12				
15	80	3 P	68	5 A	74.0	77	4.1	se	110	10			T	
16	81	3 P	65	12 P	73.0	82	6.1	s	88	8	2 A	6 P	.65	
17	86	5 P	63	6 A	74.5	73	15.0	sw	51	5				
18	90	5 P	63	2 A	76.5	75	11.0	s	95	12				
19	92	1 P	68	12 P	80.0	77	7.3	s	129	25	4-30 P	10 P	.27	
20	80	3 P	66	5 A	73.0	83	6.0	n	83	14				
21	79	4 P	64	5 A	71.5	82	2.2	s	88	10				
22	83	1 P	69	4 A	76.0	84	3.5	s	133	12	1-30 P	6 P	.03	
23	88	1 P	72	3 A	80.0	79	8.8	s	110	28	3-30 P	12 P	.15	
24	87	4 P	73	12 P	80.0	74	8.5	s	106	8				
25	74	7 P	67	12 P	70.5	90	0.0	sw	44	4	8 A	12 M	.10	
26	80	5 P	59	5 A	69.5	61	14.6	nw	120	13				
27	81	4 P	55	5 A	68.0	63	14.6	se	62	8				
28	81	3 P	57	6 A	69.0	64	14.6	se	118	10				
29	76	4 P	60	12 P	68.0	73	1.5	se	136	17	9-30 A	11 A	.05	
30	85	5 P	52	6 A	68.5	68	14.6	nw	107	13				
31	87	4 P	66	6 A	76.5	66	13.1	s	115	10				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

July, 1935		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.34, 3rd	30.28	30.50, 1892
Minimum	29.61, 31st	29.60	29.27, 1932
Mean semi-daily	30.000	29.972	
Range	0.73	.68	0.97, 1892; 0.51, 1895, 1899
Air Temperature			
Highest	95, 6th	93.9	104.0, 1911
Lowest	51, 2nd	45.5	40.0, 1890, 1898
Mean	73.2	70.6	
Monthly range	44	48.4	
Highest mean daily	82.0, 6th		
Lowest mean daily	65.0, 2nd		
Mean maximum	83.5		
Mean minimum	62.8		
Greatest daily range	33, 30th		
Least daily range	7, 25th		
Precipitation			
Precipitation. In inches	3.10	4.33	14.51, 1897; 0.70, 1929
Snow, in inches			
Maximum precipitation in 24 hrs.	.91, 8th		
Number of days on which .01 or more inches of rain fell	11	11	20, 1915; 4, 1924
Wind (miles)			
Total movement	3222	3,435	5,097, 1909; 1,109, 1894
Greatest daily movement	161, 9th		
Least daily movement	44, 25th		
Mean hourly velocity	4.3	4.6	
Maximum velocity for 5 min.,	28, 23rd	24	39, 1908, 1915
Wind (direction)			
Prevailing direction	s	sw	
North, days	3		
Northeast, days	1		
East, days	1		
Southeast, days	5		
South, days	11		
Southwest, days	5		
West, days	1		
Northwest, days	4		
Weather			
Mean relative humidity, per cent	72.7	67.9	
Mean cloudiness, per cent	58.2	50.1	69, 1914; 31, 1924
Number of clear days	14	9	22, 1923; 0, 1915
Number of fair days	8	14	24, '09, '21; 5, '89, '23, '28
Number of cloudy days	9	8	18, 1889; 0, 1910
Number of hours bright sunshine	307	267.0	371, 1910; 182, 1889
Percent of possible hours of bright sunshine	66.4	57.8	
Thunder and Lightning	12th, 16th, 22nd, 23rd.		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations from 1929 to 1934. The third column gives extremes observed from 1889 to 1934.

REMARKS

The weather during July was warmer than usual with a mean temperature of 73.2 degrees, the normal mean temperature for July being 70.6 degrees. The mean temperature for the month has been exceeded only twice since 1889. In July 1911 the mean temperature was 74.6 degrees and in 1921, 74.7 degrees. A temperature of 90 degrees or higher was recorded on only six days which is not excessive. In 1933 the thermometer reached 90 degrees or above on 12 days and in 1911 this same temperature was reached on 12 days. Those last 12 days were consecutive except for one day when the maximum was 85.5 degrees. The mean maximum for the 12 days was 96.4 degrees.

The mean humidity for the past month was 72.7 per cent which is 4.8 per cent higher than the mean for July for the last six years. This high humidity made a number of uncomfortable days, even though temperature was not excessively high.

The total rainfall for the month was 3.1 inches, the normal being 4.33 inches. The total precipitation since January 1 is now 22.25 inches. The normal for this period is 25.22 inches.

There were 307 hours of bright sunshine during the month, the normal being 267 hours. The total wind movement was 3222 miles and the maximum velocity 28 miles per hour on the 23rd.

Dr. J. K. Shaw makes the following comment on the fruit crop: "All fruits developed well during July. Some loss of strawberries from rot was reported but the crop was generally good. Tender varieties of apples like Baldwin and Gravenstein still show the effect of the cold winters in many weak trees and light crops. The same may be said of tender varieties of pears and plums. Peach trees that survived the cold have made a vigorous growth."

C. L. Lothrop, *Observer* C. I. Gunness, *Meteorologist*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 560 August, 1935

Meteorological Observations

FOR

AUGUST

1935

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day	Degrees	Time	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	87	11 P	64	6 A	75.5	66	10.5	s	108	17				
2	82	3 P	62	12 P	72.0	62	7.2	nw	104	20				
3	83	4 P	54	5 A	68.5	66	11.0	nw	71	12				
4	86	5 P	58	6 A	72.0	63	13.4	nw	50	5				
5	79	1 P	65	12 P	72.0	68	10.0	nw	156	18	12-30 A	1-30 A	.15	
6	74	4 P	62	12 P	68.0	78	2.0	ne	134	10	7 P	8 P	.05	
7	79	2 P	53	4 A	66.0	76	8.0	s	57	7				
8	80	1 P	54	5 A	67.0	69	4.5	ne	66	6				
9	87	5 P	54	5 A	70.5	63	12.2	sw	48	10				
10	83	3 P	56	6 A	69.5	61	12.2	se	138	13				
11	67	5 P	63	6 A	65.0	88	0.0	se	102	8	6 A	10-30 A	.33	
12	85	4 P	63	4 A	74.0	82	6.0	se	97	9				
13	88	3 P	68	4 A	78.0	79	5.3	se	154	14	7 P	10 P	.06	
14	82	4 P	64	12 P	73.0	77	5.5	nw	69	6	8 A	10 A	.06	
15	83	5 P	58	6 A	70.5	73	14.0	nw	46	5				
16	90	6 P	62	7 A	76.0	68	13.9	nw	57	6				
17	92	5 P	62	6 A	77.0	68	13.9	s	58	6				
18	92	3 P	62	6 A	77.0	65	10.0	sw	70	7				
19	87	4 P	59	5 A	73.0	65	7.0	se	100	8				
20	86	2 P	63	4 A	74.5	72	6.0	se	99	6				
21	87	3 P	69	5 A	78.0	70	4.0	se	141	12				
22	75	0 A	64	12 P	69.5	82	0.0	s	145	14	5 A	6 A	.01	
23	77	3 P	55	6 A	66.0	61	13.6	n	184	18				
24	72	3 P	49	6 A	60.5	54	12.0	n	253	22				
25	74	4 P	45	6 A	59.5	57	13.5	nw	184	25				
26	84	4 P	50	2 A	67.0	54	13.5	se	99	13				
27	73	5 P	59	6 A	66.0	90	0.0	se	90	9	4 P	6 P	.09	
28	79	5 P	59	12 P	69.0	66	1.0	w	157	14				
29	74	4 P	46	7 A	60.0	63	12.0	w	77	13				
30	59	3 P	50	4 A	54.5	90	0.0	nw	56	6	11 A	2-30 P	.07	
31	73	3 P	52	7 A	62.5	65	11.8	nw	81	7				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

August 1935		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.31, 18th	30.32	30.48, 1918
Minimum	29.57, 1st	29.63	28.87, 1930
Mean semi-daily	30.012	30.00	
Range	0.74	.69	1.49, 1930; 0.44, 1894
Air Temperature			
Highest	92, 17th, 18th	91.3	100.0, 1918
Lowest	45, 25th	42.9	37.0, 1894, 1908
Mean	69.4	68.4	
Monthly range	47	48.4	
Highest mean daily	78, 13th		
Lowest mean daily	54.5, 30th		
Mean maximum	80.6		
Mean minimum	58.2		
Greatest daily range	34, 26th		
Least daily range	4, 11th		
Precipitation			
Precipitation. In inches	.82	4.24	8.40, 1928; 0.31, 1894
Snow, in inches			
Maximum precipitation in 24 hrs.	.33, 11th		
Number of days on which .01 or more inches of rain fell	8	10	16, 1892, 1933; 4, 1889
Wind (miles)			
Total movement	3251	3,099	4,271, 1910; 1,920, 1894
Greatest daily movement	253, 24th		
Least daily movement	46, 15th		
Mean hourly velocity	4.4	4.2	
Maximum velocity for 5 min.,	25, 25th	21	35, 1915
Wind (direction)			
Prevailing direction	wsw	sw	
North, days	2		
Northeast, days	2		
East, days	0		
Southeast, days	9		
South, days	4		
Southwest, days	2		
West, days	2		
Northwest, days	10		
Weather			
Mean relative humidity, per cent	69.7	69.9	87.3, 1927; 65, 1929
Mean cloudiness, per cent	50.4	49.4	67, 1901; 27, 1923
Number of clear days	15	9	17, 1921; 0, 1915
Number of fair days	10	13	25, 1912; 5, 1893, 1933
Number of cloudy days	6	9	18, '01 '28; 2, '10 '23
Number of hours bright sunshine	254	237.0	317, 1921; 152, 1915, 1929
Percent of possible hours of bright sunshine	59.2	55.2	
Thunder and Lightning	11th, 13th,		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations from 1929 to 1934. The third column gives extremes observed from 1889 to 1934.

REMARKS

The outstanding feature of the weather for August was the very light rainfall of only .82 of an inch. Only once since the weather station was established in 1889 has here been less rain during August. In August 1894 only .31 of an inch of rain fell. Records for Amherst previous to the establishment of the weather station at the State College show .27 of an inch for August 1876, and .25 in 1882. These records date back to 1836, hence the dryness of the past month has been exceeded only three times during the last 100 years. The normal rainfall for August is 4.24 inches. The total rainfall since January 1 to August 31 is 23.07 inches, while the normal for the period is 29.46 inches. The dry weather has caused some damage to crops on light soil and many lawns have been burned badly.

The mean temperature was 69.4 degrees which is one degree higher than normal. The highest temperature was 92 degrees on the 17th and 18th. The lowest was 45 degrees on the 25th. There were 254 hours of bright sunshine as compared with a normal of 237 hours for August. The total wind movement during the month was 3251 miles, the normal being 3099 miles. The highest velocity was 25 miles per hour on the 25th. The mean humidity for the month was .2 of a per cent lower than normal.

C. L. Lothrop, *Observer* C. I. Gunness, *Meteorologist*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 561 September, 1935

Meteorological Observations

FOR

SEPTEMBER

1935

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	82	12 M	47	5 A	64.5	63	13.2	w	47	6				
2	67	5 P	47	12 P	57.0	72	1.5	s	40	4				
3	72	1 P	46	5 A	59.0	67	8.5	s	57	5			T	
4	59	0 A	56	8 A	57.5	93	0.0	s	53	6	5 A	12 P	2.42	
5	75	2 P	57	0 A	66.0	83	2.5	s	75	6	0 A	8 A	.06	
6	72	3 P	49	12 P	60.5	77	2.0	ne	88	13	4 P	5 P	.01	
7	74	4 P	48	4 A	61.0	83	12.9	w	78	9				
8	71	2 P	48	2 A	59.5	76	2.0	se	55	5			T	
9	61	0 A	57	12 M	59.0	95	0.0	n	65	5	0 A	12 P	1.24	
10	70	5 P	50	12 P	60.0	63	10.5	nw	133	20				
11	72	5 P	43	7 A	57.5	66	12.7	s	92	8				
12	80	3 P	48	6 A	64.0	73	11.5	sw	95	13				
13	62	11 A	52	12 P	57.0	74	0.0	nw	118	15				
14	59	1 P	50	8 A	54.5	68	0.0	nw	95	7				
15	73	1 P	48	12 P	60.5	70	5.5	nw	217	20	5 A	8 A	.20	
16	64	3 P	39	12 P	51.5	69	12.5	n	213	28				
17	69	2 P	33	6 A	51.0	68	9.5	sw	60	7				
18	71	11 A	55	4 A	63.0	71	2.0	se	149	12				
19	76	2 P	59	1 A	67.5	79	3.5	se	103	11				
20	81	12 M	53	12 P	67.0	66	5.2	n	145	17				
21	66	4 P	50	8 A	58.0	83	0.1	e	47	13	8-30 A	11 A	.02	
22	76	1 P	46	6 A	61.0	82	8.1	nw	102	18			T	
23	64	2 P	36	12 P	50.0	60	12.1	nw	151	18				
24	68	2 P	30	6 A	49.0	62	10.0	se	77	8				
25	80	3 P	50	5 A	65.0	67	10.0	se	113	8			T	
26	76	1 P	52	6 A	64.0	72	5.5	se	140	13				
27	78	12 M	57	12 P	67.5	73	2.0	se	148	13				
28	53	10 A	48	1 P	50.5	92	0.0	n	141	14	6-30 A	10 P	.72	
29	65	1 P	45	12 P	55.0	62	3.2	nw	101	15				
30	64	4 P	44	11 P	54.0	59	12.7	s	184	15				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

September, 1935		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.37, 24th	30.45	30.65, 1924
Minimum	29.49, 29th	29.59	29.32, 1900
Mean semi-daily	30.045	30.068	
Range	0.88	.86	1.20, 1904; 0.57, 1910
Air Temperature			
Highest	82, 1st	87.4	97.0, 1895, 1929
Lowest	30, 24th	32.8	24.5, 1914
Mean	59.1	61.6	
Monthly range	52	54.6	
Highest mean daily	67.5, 19th, 27th		
Lowest mean daily	49, 24th		
Mean maximum	70.0		
Mean minimum	48.3		
Greatest daily range	38, 24th		
Least daily range	3, 4th		
Precipitation			
Precipitation. In inches	4.67	3.79	12.34, 1933; 0.52, 1914
Snow, in inches			
Maximum precipitation in 24 hrs.	2.42, 4th		
Numb- of days on which .01 or more inches of rain fell	7	9	15, 1918; 3, 1903
Wind (miles)			
Total movement	3177	3,252	4,686, 1896; 1,414, 1894
Greatest daily movement	217, 15th		
Least daily movement	40, 2nd		
Mean hourly velocity	4.4	4.5	
Maximum velocity for 5 min.,	28, 16th	22	39, 1915, 1934
Wind (direction)			
Prevailing direction	sw	wsw	
North, days	4		
Northeast, days	1		
East, days	1		
Southeast, days	7		
South, days	6		
Southwest, days	2		
West, days	2		
Northwest, days	7		
Weather			
Mean relative humidity, per cent	73.0	73.2	89, 1927; 68, 1932
Mean cloudiness, per cent	57.5	48.7	70.0, 1934; 27, 1908, 1914
Number of clear days	12	9	19, 1932; 2, 1907, 1928
Number of fair days	5	11	19, 1908; 3, 1889
Number of cloudy days	13	10	20, 1934; 4, '08, '16
Number of hours bright sunshine	179	202.5	255, 1916; 106, 1934
Percent of possible hours of bright sunshine	48	54.4	
Frosts	17th, 24th		
First Frost	17th	19th	Aug. 22, '94, '95; Oct. 13, '09

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations from 1929 to 1934. The third column gives extremes observed from 1889 to 1934.

REMARKS

The weather during September was very nearly normal in most respects, although slightly cooler than usual and with heavier rainfall than normal. The mean temperature for the month was 59.1 degrees, the normal for the month being 61.6 degrees. The highest temperature was 82 degrees on the 1st and the lowest 30 degrees on the 24th. The first frost came on the 17th which is two days earlier than normal. The total rainfall for the month was 4.67 inches, the normal precipitation for September being 3.79 inches. The total rainfall since January 1 is 27.74 inches. The normal precipitation for this period is 29.46 inches. There were 179 hours of bright sunshine compared to a normal of 202 hours. The relative humidity was 73 per cent which is normal for this month. There were no high winds during the month, the highest velocity being 28 miles per hour on the 16th.

P. C. STONE, *Observer* C. I. GUNNESS, *Meteorologist*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 562 October, 1935

Meteorological Observations

FOR

OCTOBER

1935

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	70	3 P	44	0 A	57.0	60	11.7	se	170	17	10 P	12 P	.16	
2	58	3 P	34	12 P	46.0	61	10.1	nw	177	20	0 A	4 A	.05	
3	64	3 P	32	5 A	48.0	70	5.2	sw	123	20	9-30 P	12 P	.13	
4	59	1 P	39	6 A	49.0	56	10.1	w	147	14				
5	56	3 P	34	6 A	45.0	56	6.5	w	116	13				
6	53	3 P	40	6 A	46.5	69	0.1	n	89	15	0 A	1 A	.03	
7	53	1 P	28	12 P	40.5	55	6.8	nw	217	20				
8	59	4 P	24	6 A	41.5	64	11.5	sw	51	7				
9	63	3 P	34	7 A	48.5	67	14.4	sw	59	7				
10	66	3 P	32	6 A	49.0	74	6.4	se	99	13				
11	71	3 P	48	0 A	59.5	67	2.6	se	113	18			T	
12	61	3 P	32	12 P	46.5	60	11.3	nw	115	14				
13	68	3 P	27	6 A	47.5	66	11.0	se	49	8				
14	71	2 P	42	3 A	56.5	74	8.2	se	117	18				
15	60	2 P	34	12 P	47.0	51	8.3	n	248	39				
16	58	3 P	24	12 P	41.0	56	11.1	n	155	17				
17	70	3 P	23	6 A	46.5	54	11.0	se	72	12				
18	70	12 M	36	5 A	53.0	72	1.8	nw	68	25	3 P	3-30 P	.05	
19	68	4 P	41	6 A	54.5	60	10.5	sw	147	39				
20	66	4 P	40	12 P	53.0	46	10.9	w	182	28				
21	68	4 P	31	5 A	49.5	71	8.6	se	83	10				
22	73	4 P	52	7 A	62.5	86	0.3	se	106	11	0 A	10 A	.09	
23	69	3 P	50	12 P	59.5	79	0.0	se	148	28	11 A	5-30 P	.37	
24	50	0 A	34	12 P	42.0	55	8.5	nw	289	28			T	
25	46	5 P	26	7 A	36.0	63	2.7	n	72	11			T	
26	66	1 P	39	6 A	52.5	52	3.8	nw	211	25				
27	67	2 P	39	6 A	53.0	61	3.1	s	108	11				
28	73	3 P	38	7 A	55.5	67	3.0	s	95	11				
29	68	3 P	50	5 A	59.0	82	1.4	n	69	11			T	
30	71	11 A	53	6 A	62.0	74	2.1	e	157	18				
31	59	1 P	50	6 A	54.5	83	0.0	ne	155	11			T	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

October, 1935		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.61, 16th	30.53	30.68, 1929
Minimum	29.59, 3rd	29.42	29.00, 1926
Mean semi-daily	30.177	30.059	
Range	1.02	1.11	1.47, 1926; 0.76, 1899
Air Temperature			
Highest	73, 22nd, 28th	79.7	90.5, 1908
Lowest	23, 17th	23.4	18.0, 1904
Mean	50.4	50.4	
Monthly range	50	56.3	
Highest mean daily	62.5, 22nd		
Lowest mean daily	36, 25th		
Mean maximum	63.7		
Mean minimum	37.1		
Greatest daily range	47, 17th		
Least daily range	9, 31st		
Precipitation			
Precipitation. In inches	0.88	3.35	8.81, 1911; 0.01, 1924
Snow, in inches			
Maximum precipitation in 24 hrs.	0.46, 22nd, 23rd		
Number of days on which .01 or more inches of rain fell	7	8	15, 1913; 1, 1897, 1924
Wind (miles)			
Total movement	4007	4,023	5,467, 1910; 2,540, 1894
Greatest daily movement	289, 24th		
Least daily movement	49, 13th		
Mean hourly velocity	5.4	5.4	
Maximum velocity for 5 min.,	39, 15th, 19th	27	39, 1934
Wind (direction)			
Prevailing direction	sw	w	
North, days	5		
Northeast, days	1		
East, days	1		
Southeast, days	9		
South, days	2		
Southwest, days	4		
West, days	3		
Northwest, days	6		
Weather			
Mean relative humidity, per cent	64.9	69.0	86.7, 1920; 64, 1929
Mean cloudiness, per cent	42.6	47.6	67, 1932; 18, 1924
Number of clear days	15	8	16, 1934; 1, 1911
Number of fair days	5	11	17,'24;5,'94,'96,'98,'03,'17,'34
Number of cloudy days	11	12	19, 1896; 3, 1924
Number of hours bright sunshine	203	171.0	232, 1923; 91, 1913
Percent of possible hours of bright sunshine	59.6	50.1	
Thunder and Lightning	23rd		
Frosts,	3rd, 7th, 8th, 10th, 12th, 16th, 17th, 21st, 25th		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations from 1929 to 1934 The third column gives extremes observed from 1889 to 1934.

REMARKS

The weather during October was clear and dry. Only .88 inch of rain fell during the month. This is the least rain in October since 1928 when only .87 inch fell. Other years in which there has been light rainfall in October are: 1892, .66; 1897, .73; 1924, .01 inch. The normal rainfall for October is 3.35 inches. The total rainfall since January 1 is now 28.61 inches, the normal for this period being 36.60 inches. The total hours of bright sunshine for the month was 203 hours, while the normal for October is 171 hours. The mean temperature for the month was 50.4 degrees which is also the normal for the month. The first half of the month was cooler than usual, while the latter half has been warmer than normal. This, with the large amount of sunshine, has given the impression that the month has been warmer than usual. The mean relative humidity for the month was 64.9 per cent, the normal being 69 per cent. The highest wind velocity for the month was 39 miles on the 15th and 19th. The total wind movement for the month was 4007 miles which is practically the normal wind movement for October.

P. C. Stone, *Observer* C. I. Gunness, *Meteorologist*

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MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 563 November, 1935

Meteorological Observations

FOR

NOVEMBER

1935

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	58	1 P	51	5 A	54.5	88	0.0	n	135	12	5 A	8 A	.02	
2	62	4 P	55	0 A	58.5	88	0.0	nw	95	22	0-30 A	8 P	1.12	
3	65	3 P	40	12 P	52.5	53	10.2	nw	206	20				
4	61	1 P	30	6 A	45.5	78	6.0	se	91	18				
5	70	1 P	58	0 A	64.0	81	0.0	se	269	22			T	
6	66	0 A	35	12 P	50.5	53	1.5	nw	247	25			T	
7	45	3 P	31	6 A	38.0	81	0.0	nw	48	8	4-30 P	8 P	.09	
8	57	1 P	36	12 P	46.5	69	2.1	nw	108	28	2-30 A	3-30 A	.03	
9	55	4 P	29	7 A	42.0	66	10.0	nw	69	17				
10	51	4 P	34	0 A	42.5	75	0.0	se	106	15	6 P	12 P	.23	
11	61	4 P	48	0 A	54.5	90	1.5	n	41	4	3-30 A	4 A	.01	
12	58	3 P	51	1 A	54.5	90	0.0	n	31	10	7 A	12 P	.20	
13	56	0 A	45	8 P	50.5	89	0.0	ne	73	18	0 A	9 P	.30	
14	47	3 P	40	12 P	43.5	76	0.3	n	219	14				
15	40	0 A	36	12 P	38.0	78	0.0	n	230	22				
16	37	3 P	35	8 A	36.0	66	0.0	ne	186	17				
17	35	0 A	32	5 P	33.5	76	0.0	n	312	22	11 A	12 P	.62	2
18	38	3 P	33	0 A	35.5	78	0.0	nw	421	28	8 A	8 P	.01	
19	49	3 P	30	7 A	39.5	66	9.6	nw	163	10				
20	52	3 P	40	0 A	46.0	83	0.0	se	117	7	3 A	4 A	.03	
21	53	1 P	29	8 A	41.0	73	5.2	se	57	8				
22	48	3 P	29	6 A	38.5	85	0.0	nw	73	20				
23	39	0 A	22	12 P	30.5	76	0.0	n	325	25	6 A	12 P	0.09	1
24	36	3 P	20	2 A	28.0	51	6.0	n	340	25				
25	44	4 P	20	6 A	32.0	44	9.5	n	186	12				
26	45	2 P	30	6 A	37.5	74	2.0	s	69	12				
27	47	2 P	31	7 A	39.0	74	4.0	s	87	12				
28	60	6 P	42	2 A	51.0	89	0.0	s	242	25	0 A	12 P	1.43	
29	56	0 A	37	12 P	46.5	76	2.2	w	127	10	0 A	8 A	0.23	
30	37	0 A	27	12 P	32.0	64	1.0	w	108	17				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

November, 1935		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.49, 16th	30.58	30.87, 1932
Minimum	29.55, 29th	29.34	28.73, 1904
Mean semi-daily	30.124	30.046	
Range	0.94	1.29	1.84, 1904; 0.98, 1890
Air Temperature			
Highest	70, 5th	65.3	75.0, 1924
Lowest	20, 24th, 25th	13.8	3.5, 1891
Mean	43.4	38.6	
Monthly range	50	51.4	
Highest mean daily	64, 5th		
Lowest mean daily	28, 24th		
Mean maximum	50.9		
Mean minimum	35.5		
Greatest daily range	31, 4th, 6th		
Least daily range	2, 16th		
Precipitation			
Precipitation. In inches	4.41	3.45	8.64, 1927; 0.63, 1917
Snow, in inches	3.00	2.05	9, 24; t, 89, 93, 03, 12, 18, 19, 22, 27, 32, 34
Maximum precipitation in 24 hrs.	1.43, 28th		
Number of days on which .01 or more inches of rain fell	14	9	22, 1921; 2, 1904
Wind (miles)			
Total movement	4781	4,564	5,978, 1906; 2,589, 1889
Greatest daily movement	421, 18th		
Least daily movement	31, 12th		
Mean hourly velocity	6.6	6.3	
Maximum velocity for 5 min.	28, 8th, 18th	29	40, 1915
Wind (direction)			
Prevailing direction	nnw	w	
North, days	9		
Northeast, days	2		
East, days	0		
Southeast, days	5		
South, days	3		
Southwest, days	0		
West, days	2		
Northwest, days	9		
Weather			
Mean relative humidity, per cent	74.3	69.8	85.9, 1907; 63.3, 1932
Mean cloudiness, per cent	71	53.5	72, 1900, 1927; 34, 1917
Number of clear days	4	6	15, '03; 1, '00, '11, '27
Number of fair days	4	9	16, '12; 4, '89, '30, '32
Number of cloudy days	22	15	24, '27; 9, '90, '05, '17
Number of hours bright sunshine	71	121.0	182, 1903; 66, 1927
Percent of possible hours of bright sunshine	24	41.3	
Thunder and Lightning			
First snow, Nov. 17		Nov. 5	Oct. 10, '25; Nov. 27, '31

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations from 1929 to 1934 The third column gives extremes observed from 1889 to 1934.

REMARKS

The outstanding feature of the weather during November was the small amount of sunshine and high temperature. There were only 71 hours of bright sunshine, whereas the normal for November is 121 hours. Only once before, in 1927, has there been less sunshine in November since records were started in 1889. In 1927 only 66 hours were recorded. The mean temperature for the month was 43.4 degrees, the normal being 38.6 degrees. This has been exceeded only twice since the station was established in 1889. In 1927 the mean temperature was 43.9 degrees, and in 1931 it was 44.1 degrees. The domestic heating load from September 1 to November 30 is 1257 degree-days. The normal number of degree-days for this period is 1327. The total precipitation was 4.41 inches, with a snowfall of 3 inches. The normal precipitation for November is 3.45 inches, with 2.05 inches of snow. The total precipitation since January 1 is 33.02 inches, the normal being 40.05 inches. The first snow fell on November 17, the normal date being November 5. The mean relative humidity for the month was 74.3 per cent, while the normal is 69.8 per cent. The total wind movement for the month was 4781 miles, which is 200 miles higher than normal. The highest wind velocity was 28 miles an hour recorded on the 8th and 18th.

P. C. STONE, *Observer* C. I. GUNNESS, *Meteorologist*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 564 December, 1935

Meteorological Observations

FOR

DECEMBER

1935

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	33	12 M	24	12 P	23.5	77	2.7	se	64	3	12 M	6 P	.09	1.50
2	33	2 P	24	0 A	23.5	86	2.0	nw	41	15				
3	33	2 P	22	8 A	27.5	61	9.3	nw	189	20				
4	29	5 A	8	12 P	18.5	52	7.5	nw	298	32				
5	32	3 P	8	0 A	20.0	58	2.1	se	190	22				
6	28	3 P	9	7 A	18.5	50	9.2	nw	277	25				
7	34	12 P	9	8 A	21.5	64	5.5	s	43	12				
8	44	2 P	34	0 A	39.0	62	3.0	se	121	6			T	
9	42	3 P	36	6 A	39.0	87	1.6	n	69	12	0 A	11 A	.25	
10	43	2 P	34	3 A	38.5	80	1.5	s	59	12	8 P	12 P	.10	
11	40	3 P	34	5 A	37.0	78	1.1	n	151	14	0 A	6 A	.09	
12	41	1 P	26	12 P	33.5	69	5.2	n	107	12				
13	36	1 P	24	5 A	30.0	75	2.0	n	81	10				
14	38	2 P	31	5 A	34.5	73	0.2	nw	158	12				
15	38	4 P	34	8 A	36.0	91	0.0	nw	65	10	2 P	12 P	.40	
16	38	2 P	32	12 P	35.0	84	0.0	nw	116	25	2 A	3 P	.09	
17	32	0 A	22	12 P	27.0	66	7.3	nw	293	20				
18	33	3 P	18	8 A	25.5	57	9.0	w	133	12				
19	38	2 P	24	0 A	31.0	69	4.0	se	54	9				
20	34	3 P	22	12 P	28.0	79	0.0	nw	49	25	3 A	8 P	.02	0.50
21	22	0 A	8	12 P	15.0	57	9.0	nw	195	25				
22	26	3 P	8	0 A	17.0	47	9.0	nw	184	17				
23	25	4 P	11	8 A	18.0	45	9.0	n	184	14				
24	22	4 P	8	7 A	15.0	64	9.0	n	138	28				
25	25	3 P	14	7 A	19.5	49	9.0	nw	179	17				
26	22	1 P	14	8 A	18.0	65	7.3	nw	180	28	1 A	3 A	.01	T
27	20	3 P	14	8 A	17.0	56	9.1	nw	336	28				
28	17	2 P	6	12 P	11.5	53	9.2	nw	305	25				
29	14	1 P	-1	8 A	6.5	52	4.8	nw	195	20				
30	23	4 P	10	1 A	16.5	48	4.1	nw	259	20				
31	32	3 P	7	8 A	19.5	50	9.2	nw	102	12				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

December, 1935		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.68, 7th	30.65	30.96, 1889
Minimum	29.44, 20th	29.25	28.85, 1915
Mean semi-daily	30.002	30.056	
Range	1.24	1.40	1.78, 1895; 1.01, 1892
Air Temperature			
Highest	44, 8th	54.5	65.5, 1908
Lowest	-1, 29th	-2.3	-22.5, 1917
Mean	24.9	27.3	
Monthly range	45	56.8	
Highest mean daily	39 8th, 9th		
Lowest mean daily	6.5, 29th		
Mean maximum	31.2		
Mean minimum	18.5		
Greatest daily range	25, 7th, 31st		
Least daily range	4, 15th		
Precipitation			
Precipitation. In inches	1.05	3.47	7.77, 1901; 0.87, 1896
Snow, in inches	2.00	8.99	26.50, '02; t, 1891
Maximum precipitation in 24 hrs.	0.49, 15th, 16th		
Number of days on which .01 or more inches of rain fell	8	9	17, 1902; 4, 1892
Wind (miles)			
Total movement	4815	4,726	6,694, 1925; 3,239, 1918
Greatest daily movement	336, 27th		
Least daily movement	41, 2nd		
Mean hourly velocity	6.5	6.4	
Maximum velocity for 5 min.,	32, 4th	29	45, 1934
Wind (direction)			
Prevailing direction	nw	w	
North, days	6		
Northeast, days	1		
East, days	0		
Southeast, days	3		
South, days	2		
Southwest, days	0		
West, days	1		
Northwest, days	18		
Weather			
Mean relative humidity, per cent	64.7	70.0	87.1, 1919; 63, 1931
Mean cloudiness, per cent	53.4	53.4	71, 1929; 39, 1919
Number of clear days	14	8	15, 1890; 2, 1922, 1933
Number of fair days	6	10	16, 1909; 4, 1889, 1930, 1931
Number of cloudy days	11	13	19, 1911, 1922; 7, 1909, 1923
Number of hours bright sunshine	162	130.7	172, 1896; 63.1, 1933
Percent of possible hours of bright sunshine	57.1	46.0	
Thunder and Lightning			

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations from 1929 to 1934 The third column gives extremes observed from 1889 to 1934.

ANNUAL SUMMARY

Annual, 1935		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.81, Jan. 5	30.81	31.05, 1920
Minimum	29.35, Apr. 17	28.95	28.47, 1914
Mean semi-daily	30.022	30.016	
Range	1.46	1.86	2.33, 1913; 1.38, 1933
Air Temperature			
Highest	95, July 6	95.8	104, 1911
Lowest	–21, Jan. 28	–12.1	–26.0, 1904
Mean	47.1	47.2	49.6, 1913; 44.0, 1904
Yearly range	116	108.0	
Highest mean daily	82, July 6		
Lowest mean daily	–3.5, Jan. 27 & 28		
Mean maximum	57.0	57.8	
Mean minimum	37.0	36.5	
Greatest daily range	47, Oct. 17		
Least daily range	2, Nov. 16		
Precipitation			
Precipitation. In inches	34.08	43.49	57.05, 1897; 30.68, 1908
Snow, in inches	47.75	48.38	78.00, 1920; 24.50, 1919
Maximum precipitation in 24 hrs.	2.42, Sept. 4		
Number of days on which .01 or more inches of rain fell	116	123	144, 1902; 96, 1924
Wind (miles)			
Total movement	50,765	52,321	63,571, 1908; 36,257, 1894
Greatest daily movement	460, Jan. 24		
Least daily movement	31, Nov. 12		
Mean hourly velocity	5.8	6.0	
Maximum velocity for 5 min.,	45, Mar. 17 & 24, May 1	35	48, 1932, 1934
Wind (direction)			
Prevailing direction	w	w	
North, days	47		
Northeast, days	15		
East, days	9		
Southeast, days	87		
South, days	39		
Southwest, days	20		
West, days	39		
Northwest, days	109		
Weather			
Mean relative humidity, per cent	69.2	67.2	
Mean cloudiness, per cent	55.8	50.8	60, '98, '01, '02; 41, '08, '24
Number of clear days	137	109	150, 1932; 59, 1927
Number of fair days	86	128	182, 1912; 83, 1894
Number of cloudy days	142	128	179, '01, '02; 71, 1910
Number of hours bright sunshine	2239	2,356	2,838, 1924; 1,864, 1902
Percent of possible hours of bright sunshine	50.3	53.0	
Last frost	May 25	M'y 12	Apr. 23, 1904; June 8, 1932
First frost	Sept. 17	S't 19	Aug. 22, '94, '95; Oct. 13, '09
Last snow	Apr. 17	Apr 14	Mar. 14, '10; May 5, '91, '17
First snow	Nov. 17	Nov 5	Oct. 10, '25; Nov. 27, '31

NOTE—The first column in the above summary gives observations made during the year. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations from 1929 to 1934 The third column gives extremes observed from 1889 to 1934.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 565 January, 1936

Meteorological Observations

FOR

JANUARY

1936

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	33	4 P	10	3 A	21.5	71	6.0	w	43	3				
2	35	12 P	11	5 A	23.0	84	0.7	sw	31	17	6 P	12 P	0.29	0.75
3	50	8 A	34	1 A	42.0	81	0.0	w	147	23	0 A	3 P	1.58	
4	44	12 M	35	5 A	39.5	60	5.0	s	168	8				
5	39	11 A	32	12 P	35.5	76	0.3	nw	196	21	2-30 A	5 A	0.26	T
6	35	12 M	29	6 A	32.0	81	0.0	w	78	6	5 P	12 P	0.07	T
7	39	3 P	29	12 P	34.0	77	7.0	n	101	14	0 A	8 A	0.05	T
8	35	2 P	26	8 A	30.5	64	9.2	n	94	11				
9	33	2 P	26	8 P	29.5	72	0.0	n	100	13	3 P	12 P	0.76	3.75
10	39	2 P	32	0 A	35.5	73	2.2	nw	230	22	0 A	4 A	0.08	
11	37	2 P	33	12 P	35.0	66	1.0	s	111	4				T
12	38	1 P	30	9 A	34.0	77	2.7	nw	50	12	0 A	6 A	0.15	2.00
13	47	12 M	30	0 A	38.5	65	1.4	se	206	25	2 P	7 P	0.09	
14	36	3 P	20	8 A	28.0	48	9.3	nw	244	15				
15	38	8 P	27	2 A	32.5	83	0.0	nw	107	23	4 P	12 P	1.42	
16	39	3 A	25	12 P	32.0	53	9.4	w	313	24				
17	32	3 P	18	8 A	25.0	50	9.4	nw	126	12				
18	20	11 P	12	8 A	16.0	86	0.0	nw	116	15	5 A	8 P	0.43	3.75
19	23	8 P	17	2 P	20.0	88	0.0	n	235	32	6 A	12 P	1.28	10.25
20	22	4 P	8	11 P	15.0	58	7.7	nw	386	24				
21	28	3 P	-3	8 A	12.5	69	9.6	s	75	7				
22	40	12 P	17	0 A	28.5	68	9.0	se	181	21				
23	40	0 A	4	9 A	22.0	53	7.8	w	372	26				
24	15	4 P	5	6 A	10.0	56	5.2	nw	313	24				
25	19	3 P	6	12 P	12.5	56	9.7	nw	313	23				
26	23	4 P	-4	7 A	9.5	63	9.7	nw	53	2				
27	14	2 P	0	0 A	7.0	71	3.7	nw	103	19	7 A	8 A	.01	T
28	18	4 P	6	0 A	12.0	58	9.8	nw	400	22				
29	19	1 P	-1	12 P	9.0	47	9.9	nw	236	23				
30	21	3 P	-6	7 A	7.5	63	10.0	w	35	3				
31	20	4 P	-4	5 A	8.0	65	7.3	w	77	13				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

January, 1936	Normal	Extremes
Barometer (Readings reduced to sea level)		
Maximum 30.54, 8th	30.71	31.00, 1927
Minimum 29.17, 23rd	29.18	28.55, 1913
Mean semi-daily 29.962	30.07	
Range 1.37	1.54	2.18, 1913; 0.97, 1896
Air Temperature		
Highest 50, 3rd	50.4	66.0, 1932
Lowest .... -6, 30th	-7.4	-26.0, 1904
Mean 23.8	23.8	
Monthly range 56	58.2	
Highest mean daily 42, 3rd		
Lowest mean daily 7, 27th		
Mean maximum 31.3		
Mean minimum 16.3		
Greatest daily range 36, 23rd		
Least daily range 4, 11th		
Precipitation		
Precipitation. In inches 6.47	3.42	7.15, 1898; 1.07, 1896
Snow, in inches 20.50	13	33, 1898, 1923; 1.75, 1911
Maximum precipitation in 24 hrs. 1.87, 2nd, 3rd		
Number of days on which .01 or more inches of precipitation fell ... 13	11	18, 1923; 4, 1889
Wind (miles)		
Total movement 5,199	5,068	7,770, 1908; 2,896, 1895
Greatest daily movement 400, 28th		
Least daily movement 31, 2nd		
Mean hourly velocity 7	6.8	
Maximum velocity for 5 min., 32, 19th	30	41, 1911
Wind (direction)		
Prevailing direction .... nw	wnw	
North, days 4		
Northeast, days 0		
East, days 0		
Southeast, days 2		
South, days 3		
Southwest, days 1		
West, days 7		
Northwest, days 14		
Weather		
Mean relative humidity, per cent.. 67.3	69.5	
Mean cloudiness, per cent 50.3	54	78, 1932; 37, 1908
Number of clear days 15	8	16, 1922; 2, 1914
Number of fair days 4	10	18, 1890, 1926; 3, 1916
Number of cloudy days 12	13	22, 1923, 1931; 4, 1920
Number of hours bright sunshine. 163	140	214, 1920; 74.2, 1932
Percent of possible hours of bright sunshine 55.0	47.6	
Thunder and Lightning		
Frosts		

NOTE—The first column in the above summary gives observations made during the year. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1935. The third column gives extremes observed from 1889 to 1935.

REMARKS

The weather during January was very near normal in most respects, except for excessive rain and snow. The heavy snow storm on the 18th and 19th, with steady cold weather since that date, has given the impression of rather severe winter weather. The mean temperature for the month, however, was 23.8 degrees which is normal for January. The lowest temperature was –6.0 degrees on the 30th. The normal minimum for January is –7.4 degrees. It may be of interest to recall that the temperature fell to –21.0 degrees on January 28, 1935. The domestic heating load for the season to the end of January is 3780 degree-days. The normal for this period is 3773 degree-days. The total precipitation for the month was 6.47 inches, the normal being 3.42 inches. The total snowfall was 20.50 inches The normal snowfall for January is 13 inches. A total of 14 inches of snow fell on the 18th and 19th. There were 163 hours of bright sunshine, the normal for January being 140 hours.

Dr. J. K. Shaw makes the following comments:

> "Although there were several very cold mornings during the month, the peach buds in the College orchards show no more than normal killing. There remains about two or three weeks of the danger period. If this is safely passed, our peach growers may feel assured of a good year, for the crop has been ruined in some peach growing regions."

P. C. Stone, *Observer* C. I. Gunness, *Meteorologist*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 566 February, 1936

Meteorological Observations

FOR

FEBRUARY

1936

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	18	2 P	-3	7 A	7.5	66	10.0	nw	180	21				
2	16	2 P	7	12 P	11.5	47	10.0	nw	351	22				
3	26	3 P	-2	8 A	12.0	62	8.0	sw	75	7	7-30 A	12 P	0.04	T
4	32	11 P	18	2 A	25.0	92	0.0	n	105	23	0 A	6 P	0.52	1.75
5	28	1 P	10	12 P	19.0	49	10.1	nw	226	22				
6	20	3 P	4	7 A	12.0	45	10.1	nw	182	12				
7	15	5 P	6	2 A	10.5	57	0.0	n	142	15				
8	29	3 P	-1	7 A	14.0	53	10.2	nw	81	10				
9	17	8 P	6	3 A	11.5	76	0.0	nw	78	8	8 A	4 P	0.38	4.50
10	12	1 P	0	7 A	6.0	57	8.5	w	181	16				
11	20	1 P	2	4 A	11.0	52	5.2	w	198	19				
12	22	4 P	10	7 A	16.0	49	10.4	w	218	21				
13	23	4 P	5	5 A	14.0	71	0.0	s	74	11	4 P	12 P	0.09	0.50
14	24	8 P	16	3 A	20.0	88	0.0	n	233	14	0 A	5 P	0.81	7.50
15	45	1 P	19	12 P	32.0	71	7.7	n	96	12	7 A	8 A		T
16	31	4 P	11	7 A	21.0	90	0.0	w	31	4	11 A	6 P	0.03	0.25
17	37	2 P	30	0 A	33.5	91	0.3	nw	61	11	0 A	9 P	0.16	
18	36	8 A	2	12 P	19.0	77	0.6	nw	257	21	5 A	2-30 P	0.44	1.50
19	17	4 P	-3	12 P	7.0	48	10.7	w	175	11				
20	23	2 P	-12	8 A	5.5	55	10.6	s	49	5				
21	30	3 P	-7	8 A	11.5	59	10.8	nw	46	13				
22	26	2 P	10	8 A	18.0	46	10.9	nw	262	18				
23	29	3 P	0	7 A	14.5	50	10.7	nw	102	13				
24	30	12 P	5	8 A	17.5	68	5.0	se	60	18				T
25	38	2 P	30	0 A	34.0	88	1.1	nw	71	15	0 A	2 A	0.04	T
26	46	12 M	34	3 A	40.0	50	0.1	e	88	6				
27	39	4 A	30	4 P	34.5	86	0.0	e	67	17	10-30 A	1 P	0.13	
28	30	0 A	18	12 P	24.0	49	9.0	w	237	14				
29	35	4 P	8	7 A	21.5	68	9.0	s	222	20				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

February, 1936		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.47, 8th	30.63	31.05, 1920
Minimum	29.40, 4th	29.20	28.56, 1895
Mean semi-daily	30.086	30.03	
Range	1.07	1.43	1.89,1900, 1908;.88,1913,1931
Air Temperature			
Highest	46, 26th	50.3	65.0, 1930
Lowest	–12, 20th	–7.9	–22.5, 1918
Mean	18.1	23.5	
Monthly range	58	58.2	
Highest mean daily	34.5, 27th		
Lowest mean daily	5.5, 20th		
Mean maximum	27.4		
Mean minimum	8.7		
Greatest daily range	37, 21st		
Least daily range	7, 17th		
Precipitation			
Precipitation. In inches	2.64	3.35	8.12, 1900; 0.62, 1901
Snow, in inches	16.00	14.27	48.75, 1893; 2.5, 1912
Maximum precipitation in 24 hrs.	0.90, 13th, 14th		
Number of days on which .01 or more inches of precipitation fell	10	10	15, 1893, 1920; 4, 1901
Wind (miles)			
Total movement	4,148	4,833	6,445, 1896; 3,438, 1892
Greatest daily movement	351, 2nd		
Least daily movement	31, 16th		
Mean hourly velocity	6	7.1	
Maximum velocity for 5 min.,	23, 4th	29	45, 1933
Wind (direction)			
Prevailing direction	nw	wnw	
North, days	4		
Northeast, days	0		
East, days	2		
Southeast, days	1		
South, days	3		
Southwest, days	1		
West, days	6		
Northwest, days	12		
Weather			
Mean relative humidity, per cent	64.1	67.7	
Mean cloudiness, per cent	48.0	50.5	66, 1890, 1927; 31, 1905
Number of clear days	16	10	17, 1924; 2, 1927
Number of fair days	2	8	16, 1920; 3, 1890
Number of cloudy days	11	10	16, 1894; 2, 1920
Number of hours bright sunshine	169	160	221, 1924; 110, 1927
Percent of possible hours of bright sunshine	57.1	54.1	
Thunder and Lightning			
Frosts			

NOTE—The first column in the above summary gives observations made during the year. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1935. The third column gives extremes observed from 1889 to 1935.

REMARKS

The month of February was considerably colder than usual, although not nearly as cold as February of 1934. The mean temperature for the month was 18.1 degrees, the normal being 23.5 degrees. In February, 1934 the mean temperature was 11.6 degrees. The lowest temperature was –12 degrees on the 20th. Steady cold weather during the last two weeks in January and more than three weeks in February, with the ground covered with snow during all that time has made a severe winter. Pomologists state that fruit buds have not suffered severe winter injury. Practically no injury to apples and only slight injury to peaches. The heating load during the month was 1361 degree-days, the normal being 1162 degree-days. The total heating load for the season to the end of February is 5141 degree-days compared to a normal of 4935 degree-days. The total precipitation for the month was 2.64 inches, the normal being 3.35 inches. The snowfall was 16 inches, whereas the normal for February is 14.27 inches. The total snowfall for the winter is 41.50 inches, while the normal for this period is 38.31 inches. There were 169 hours of bright sunshine, the normal being 160 hours.

P. C. Stone, *Observer* C. I. Gunness, *Meteorologist*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 567 March, 1936

Meteorological Observations

FOR

MARCH

1936

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	32	5 P	19	12 P	25.5	58	11.2	n	150	16				
2	39	4 P	7	7 A	23.0	62	11.2	se	152	11	10-30 P	12 P	0.05	0.75
3	33	4 P	26	6 A	29.5	86	0.8	n	122	10	0 A	8 A	0.10	1.75
4	46	2 P	26	7 A	36.0	80	9.5	s	130	17				
5	37	0 A	29	12 P	33.0	89	0.0	n	57	8	0 A	7 P	0.30	2.25
6	29	0 A	13	7 A	21.0	59	10.4	n	143	17				
7	31	5 P	10	7 A	20.5	48	11.0	nw	103	9				
8	39	3 P	3	6 A	21.0	59	11.5	sw	70	11				
9	38	3 P	30	0 A	34.0	91	0.0	se	112	9	0 A	8 P	0.23	T
10	45	4 P	34	1 A	39.5	92	0.7	nw	36	4	0 A	11-30 P	0.03	
11	50	5 P	38	6 A	44.0	90	0.0	e	118	19	8 A	12 P	0.61	
12	53	4 A	45	8 P	49.0	93	0.0	se	135	14	0 A	10 P	1.33	
13	46	0 A	33	12 P	39.5	62	8.1	s	246	15	3 A	12 M	0.01	
14	44	4 P	32	7 A	38.0	63	4.7	w	163	12				
15	54	3 P	32	7 A	43.0	75	11.8	n	52	5				
16	48	11 P	35	3 A	41.5	86	1.2	n	52	6			T	
17	64	2 P	38	7 A	51.0	86	0.4	s	113	22	0 A	10 P	0.07	
18	59	8 A	53	7 P	56.0	88	0.0	se	289	21	1 A	8 P	2.13	
19	57	12 M	41	12 P	49.0	75	0.2	se	159	16	0 A	6 P	0.05	
20	58	4 P	39	7 A	48.5	63	4.5	s	159	10				
21	53	4 P	40	2 A	46.5	82	0.0	s	123	15	0-30 A	3 P	0.69	
22	44	1 P	38	6 A	41.0	58	3.6	w	368	26	0 A	4 A	0.09	
23	58	3 P	37	6 A	47.5	47	12.2	w	246	15				
24	65	3 P	39	6 A	52.0	55	8.6	s	64	8	8-30 P	12 P	0.04	
25	48	4 P	40	8 A	44.0	86	0.0	e	78	7	0 A	3 A	0.18	
26	66	4 P	36	8 A	51.0	62	10.0	s	56	6				
27	46	0 A	34	6 A	40.0	92	0.0	nw	70	12	8 A	12 P	1.12	
28	57	1 P	42	7 A	49.5	44	11.5	nw	293	27	0 A	1-30 A	0.01	
29	70	3 P	35	6 A	52.5	52	12.5	sw	171	14				
30	72	3 P	40	5 A	56.0	61	9.5	s	118	11				
31	57	10 A	34	12 P	45.5	63	4.9	nw	284	23				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

March. 1936	Normal	Extremes
Barometer (Readings reduced to sea level)		
Maximum 30.43, 8th	30.60	30.96, 1904
Minimum........ 29.08, 21st	29.26	28.47, 1914
Mean semi-daily........ 29.941	30.02	
Range........ 1.35	1.35	2.10, 1914; 0.85, 1915
Air Temperature		
Highest 72, 30th	63.9	79.5, 1907, 1921
Lowest 3, 8th	5.7	-7.5, 1906
Mean 40.9	34.2	
Monthly range........ 69	58.2	
Highest mean daily .... 56, 18th & 30th		
Lowest mean daily 20.5, 7th		
Mean maximum 49.6		
Mean minimum........ 32.2		
Greatest daily range 36, 8th		
Least daily range 6, 18th, 22nd		
Precipitation		
Precipitation. In inches 7.04	3.68	7.13, 1899; 0.12, 1915
Snow, in inches 4.75	8.11	27, 1899; 0, 1921
Maximum precipitation in 24 hrs. 2.13, 18th		
Number of days on which .01 or more inches of precipitation fell ... 17	11	17, 1890, 1913; 3, 1915
Wind (miles)		
Total movement 4,432	5,738	7,628, 1932; 3,006, 1905
Greatest daily movement 368, 22nd		
Least daily movement........36, 10th		
Mean hourly velocity 6.0	7.7	
Maximum velocity for 5 min., 27, 28th	29	48, 1932
Wind (direction)		
Prevailing direction .... sw	wnw	
North, days 6		
Northeast, days 0		
East, days 2		
Southeast, days........ 5		
South, days 8		
Southwest, days 2		
West, days 3		
Northwest, days........ 5		
Weather		
Mean relative humidity, per cent.. 71.2	63.5	
Mean cloudiness, per cent 59.0	51.0	68, 1901; 27, 1915
Number of clear days........ 13	11	22, 1924; 3, 1901
Number of fair days........ 4	9	17, 1900; 4, 1895
Number of cloudy days........ 14	11	21, 1901; 1, 1915
Number of hours bright sunshine. 170	201	292, 1924; 93, 1901
Percent of possible hours of bright sunshine........ 45.8	54.2	
Thunder and Lightning 21st		
Frosts........		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1935 The third column gives extremes observed from 1889 to 1935.

REMARKS

The outstanding feature of the weather for March was the heavy precipitation and high temperature. These factors taken with the heavy blanket of snow on the ground at the beginning of the month were the direct cause of the flood. A total of 41.25 inches of snow fell during January, February, and March, the normal for this period being 35.38 inches. There were still 10 inches of snow on the ground at Amherst on March 1 but this had all melted by the 14th. There was still a heavy layer of snow on the hills in New Hampshire and Vermont at the beginning of the rain on the 17th. The snowfall during March was 4.75 inches and the total precipitation 7.04 inches. This heavy precipitation during March has been exceeded only twice since 1836. In 1876 the total precipitation was 7.14 inches and in 1899 it was 7.13 inches. The normal precipitation for March is 3.68 inches. The total precipitation since January 1 is 16.15 inches, the normal being 10.45 inches.

The mean temperature for the month was 40.9 degrees. This has been exceeded only twice since 1837. It was 42.9 in 1903 and 42.5 in 1921. The highest temperature was 72 degrees on the 30th which is the highest since 1927 when it was 74 degrees.

The domestic heating load for the season is now 5888 degree-days, the normal to the end of March being 5890 degree-days. There were 170 hours of bright sunshine, the normal for March being 201 hours.

Dr. J. K. Shaw of the Department of Pomology makes the following statement in regard to vegetation:

"Although peach buds in the College Orchards were subjected to a temperature of –16°, there remain plenty of live fruit buds. In other years this temperature caused complete killing. The trees were in excellent condition and bore no crop last year. Prospects over the state for a peach crop should be good.

"The unseasonably warm weather of the last of the month advanced the buds of all fruits so that they are nearly a month ahead of the season. Probably cooler weather in April will hold them more or less stationary for a time and bloom may not occur especially early. Severe cold would do great damage to the buds in their present state. However, injury from severe spring cold or frosts is rare in well located orchards in New England."

P. C. Stone, *Observer* C. I. Gunness, *Meteorologist*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 568 May, 1936

Meteorological Observations

FOR

MAY

1936

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	48	5 P	30	6 A	39.0	50	6.6	nw	143	15				
2	36	12 M	33	2 A	34.5	92	0.0	n	105	8	0 A	12 P	.55	.50
3	40	2 P	30	12 P	35.0	68	5.6	nw	198	20	2 A	6 A	.29	
4	42	4 P	28	4 A	35.0	43	12.8	w	294	19				
5	51	1 P	32	2 A	41.5	54	6.0	se	138	13	10 P	12 P	.06	
6	58	6 P	40	0 A	49.0	86	0.0	se	329	32	0 A	2 P	1.17	
7	41	0 A	35	7 A	38.0	81	0.0	n	119	14	1 P	8 P	.09	
8	45	4 P	29	12 P	37.0	59	11.5	w	257	28	3 A	6 A	.02	
9	55	1 P	26	6 A	40.5	55	9.5	se	138	13	8 P	12 P	.06	
10	46	3 P	36	1 A	41.0	87	0.0	n	122	10	0 A	8 A	.14	
11	42	3 P	37	12 P	39.5	86	0.0	n	132	12	0 A	8-30 P	.80	
12	45	2 P	34	6 A	39.5	77	1.2	nw	65	7			T	
13	49	3 P	35	12 P	42.0	76	0.7	se	74	16			T	
14	58	4 P	30	6 A	44.0	56	13.3	nw	131	17				
15	49	1 P	40	12 P	44.5	89	0.0	n	90	12	2 A	3 P	.64	
16	49	11 A	37	7 A	43.0	69	1.8	w	207	24	4 A	9 A	.13	
17	45	3 P	37	5 A	41.0	58	2.0	w	301	21				
18	48	5 P	36	12 P	42.0	65	0.5	w	164	15				
19	49	12 M	32	4 A	40.5	54	4.5	w	145	20				
20	58	2 P	33	5 A	45.5	61	7.7	s	82	8	8 P	9 P	.01	
21	62	2 P	40	12 P	51.0	76	1.2	w	149	25	8 A	1-30 P	.03	
22	47	3 P	32	12 P	39.5	53	13.7	w	315	22				
23	59	3 P	26	5 A	42.5	51	13.7	w	86	11				
24	50	4 P	32	12 P	41.0	49	13.7	nw	262	22				
25	55	3 P	25	5 A	40.0	49	12.8	s	142	15				
26	57	4 P	40	12 P	48.5	70	4.2	s	280	24	3-30 A	10 A	.04	
27	68	4 P	29	6 A	48.5	49	13.9	se	101	11				
28	62	4 P	37	5 A	49.5	64	9.6	s	237	14				
29	79	3 P	51	0 A	65.0	73	7.9	s	199	17			T	
30	77	5 P	56	4 A	66.5	71	2.6	s	120	9	3 A	4-30 A	.04	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

April, 1936		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.51, 9th	30.48	30.71, 1911
Minimum	29.40, 3rd	29.41	28.99, 1907, 1929
Mean semi-daily	30.009	29.99	
Range	1.11	1.08	1.52, 1930; 0.72, 1919
Air Temperature			
Highest	79, 29th	79.5	88.5, 1896
Lowest	25, 25th	21.6	8.5, 1923
Mean	43.4	45.8	
Monthly range	54	57.8	
Highest mean daily	66.5, 30th		
Lowest mean daily	34.5, 2nd		
Mean maximum	52.3		
Mean minimum	34.6		
Greatest daily range	39, 27th		
Least daily range	3, 2nd		
Precipitation			
Precipitation. In inches	4.07	3.27	6.89, 1929; 0.76, 1892
Snow, in inches	0.50	2.32	11, 1891; 0, 1910
Maximum precipitation in 24 hrs.	1.23, 5th and 6th		
Number of days on which .01 or more inches of precipitation fell	15	11	18, 1909; 3, 1892
Wind (miles)			
Total movement	5,115	5,436	8,208, 1908; 3,853, 1917
Greatest daily movement	329, 6th		
Least daily movement	65, 12th		
Mean hourly velocity	7.1	7.5	
Maximum velocity for 5 min.,	32, 6th	29	40, 1935
Wind (direction)			
Prevailing direction	w	wnw	
North, days	5		
Northeast, days	0		
East, days	0		
Southeast, days	5		
South, days	6		
Southwest, days	0		
West, days	9		
Northwest, days	5		
Weather			
Mean relative humidity, per cent.	65.7	60.8	
Mean cloudiness, per cent	62.8	49.2	75, 1901; 34, 1925, 1927
Number of clear days	9	11	19, 1911; 3, 1898, 1902
Number of fair days	6	10	18, 1915; 2, 1894, 1901
Number of cloudy days	15	9	22, 1901; 3, 1899, 1924
Number of hours bright sunshine.	177	221	296, 1911; 103, 1901
Percent of possible hours of bright sunshine	43.9	55	
Thunder and Lightning	15th		
Frosts after 15th	23rd, 25th, 27th		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1935. The third column gives extremes observed from 1889 to 1935.

REMARKS

The weather during the month of April was colder than usual, with less sunshine and more rain than normal. The mean temperature for the month was 43.4 degrees which is 2.4 degrees colder than usual. The highest temperature was 79 degrees on the 29th and the lowest, 25 degrees on the 25th. The domestic heating load for the month was 646 degree-days, the normal being 576. The total number of degree-days for the season is now 6534 as compared to a normal of 6466 for the period from September 5 to April 30. The total precipitation for the month was 4.07 inches. The normal for April is 3.27 inches. The total precipitation since January 1 is 20.22 inches, the normal for this period being 13.72 inches. Rain fell on 15 days during April. We usually have rain on 11 days during this month. There were 177 hours of bright sunshine, the normal being 221 hours. The mean relative humidity for the month was 65.7 per cent. The normal humidity for April is 60.8 per cent. There was thunder and lightning on the 15th.

P. C. STONE, *Observer* C. I. GUNNESS, *Meteorologist*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 569 May, 1936

Meteorological Observations

FOR

MAY

1936

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	84	2 P	54	5 A	69.0	57	14.0	s	124	13				
2	83	2 P	52	6 A	67.5	61	14.1	se	222	18				
3	67	4 P	59	12 P	63.0	89	0.0	se	178	10	7-30 A	12 P	.50	
4	61	11 A	52	12 P	56.5	83	0.0	n	70	9	0 A	1-30 P	.08	
5	66	1 P	42	6 A	54.0	59	9.0	nw	117	17			T	
6	70	5 P	42	6 A	56.0	56	7.5	s	104	11				
7	67	4 P	50	5 A	58.5	76	0.1	se	194	16	3-30 A	11 A	.09	
8	91	3 P	53	6 A	72.0	65	14.3	w	103	12				
9	90	2 P	54	12 P	72.0	63	12.0	ne	130	21			T	
10	66	6 P	48	5 A	57.0	65	3.0	ne	98	12				
11	82	4 P	48	2 A	65.0	69	9.0	s	108	9				
12	87	3 P	55	5 A	71.0	69	13.5	sw	76	6				
13	73	11 A	59	5 A	66.0	81	3.0	s	122	13	1 P	7-30 P	.25	
14	57	4 P	38	12 P	47.5	52	14.0	nw	329	26	1 A	5 A	.33	
15	68	4 P	32	5 A	50.0	46	14.6	sw	148	18			T	
16	56	4 P	32	6 A	44.0	47	14.6	n	198	15				
17	74	3 P	36	3 A	55.0	75	7.5	se	112	17	7-30 A	9 A	.03	
18	88	4 P	56	6 A	72.0	61	14.7	w	152	14	6 P	7 P	.03	
19	74	11 A	52	12 P	63.0	79	2.0	se	153	21	0 A	7 P	.44	
20	59	5 P	44	7 A	51.5	49	14.7	w	273	22	4-30 A	5 A	.01	
21	64	5 P	32	5 A	48.0	46	11.8	w	145	15				
22	70	6 P	32	4 A	51.0	46	14.8	n	65	7				
23	85	3 P	43	6 A	64.0	53	12.8	se	125	12				
24	86	12 M	53	5 A	69.5	54	12.9	w	88	21				
25	76	4 P	56	12 P	66.0	51	14.9	nw	121	20				
26	77	3 P	43	5 A	60.0	56	14.9	nw	68	12				
27	74	4 P	50	12 P	62.0	66	7.5	se	155	17			T	
28	57	2 P	42	12 A	49.5	62	1.2	nw	253	21			T	
29	69	5 P	36	5 A	52.5	55	13.0	w	92	14				
30	61	10 A	45	4 A	53.0	63	9.6	w	151	18				
31	69	3 P	41	5 A	55.0	56	13.0	w	115	14				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

May, 1936		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.62, 22nd	30.38	30.55, 1895
Minimum	29.51, 28th	29.51	29.16, 1893
Mean semi-daily	29.998	29.95	
Range	1.11	.88	1.21, 1929; 0.60, 1899
Air Temperature			
Highest	91, 8th	85.5	94.5, 1911
Lowest	32, 15th, 16th, 21st, 22nd	30.8	24.0, 1900
Mean	59.4	56.8	
Monthly range	59	54.6	
Highest mean daily	72, 8th, 9th, 18th		
Lowest mean daily	44, 16th		
Mean maximum	72.5		
Mean minimum	46.2		
Greatest daily range	42, 23rd		
Least daily range	8, 3rd		
Precipitation			
Precipitation. In inches	1.76	3.63	7.44, 1931; 0.48, 1903
Snow, in inches			
Maximum precipitation in 24 hrs.	.58, 3rd and 4th		
Number of days on which .01 or more inches of rain fell	9	12	20, 1901; 5, 1903
Wind (miles)			
Total movement	4,389	4,540	5,946, 1907; 2,180, 1894
Greatest daily movement	329, 14th		
Least daily movement	65, 22nd		
Mean hourly velocity	5.9	6.1	
Maximum velocity for 5 min.,	26, 14th	25	45, 1935
Wind (direction)			
Prevailing direction	wsw	w	
North, days	3		
Northeast, days	2		
East, days	0		
Southeast, days	7		
South, days	4		
Southwest, days	2		
West, days	8		
Northwest, days	5		
Weather			
Mean relative humidity, per cent	61.6	59.7	
Mean cloudiness, per cent	40.5	51.5	70, 1901; 30, 1923
Number of clear days	18	10	20, 1923; 0, 1927
Number of fair days	7	11	17, 1907, 1926; 5, 1923
Number of cloudy days	6	10	20, 1927; 3, 1903, 1922
Number of hours bright sunshine.	308	250.1	334, 1922; 137, 1927
Percent of possible hours of bright sunshine	68	55.2	
Thunder and Lightning	3rd, 13th, 14th, 27th		
Frosts	15th, 16th, 21st, 22nd		
Last Frosts		12th	June 8, 1932; Apr. 23, 1904

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1935. The third column gives extremes observed from 1889 to 1935.

REMARKS

The weather during May was warmer than usual with less rain and considerable more sunshine than normal. The mean temperature for the month was 59.4 degrees, the normal mean being 56.8 degrees. The highest temperature was 91 degrees on the 8th and the lowest was 32 degrees on the 15th, 16th, 21st and 22nd. The total heating load for the season to the end of May is 6748 degree-days, the normal being 6720 degree-days. The precipitation during the month was 1.76 inches. The normal precipitation for May is 3.63 inches. The total precipitation from January 1 to May 31 is 21.98 inches as compared to a normal of 17.35 inches. There were 308 hours of bright sunshine. This is the greatest number of hours of sunshine during May since 1923, when there were 325 hours. The normal sunshine for May is 250.1 hours. On May 22 was recorded the highest barometer for May since the station was established. The maximum this year was 30.62 inches. In May 1895 it was 30.55 inches. The mean relative humidity for the month was 61.6 per cent, the normal being 59.7 per cent. There were light frosts at the observatory and heavier frosts on lower land within the town on the 15th, 16th, 21st and 22nd.

Dr. J. K. Shaw of the Pomology Department gives the following comment on the fruit crop:

> "The past spring was characterized by alternate cold and warm periods. Warm weather in March developed the fruit buds nearly to the pink stage. Cold weather during April allowed little growth. Then a warm period brought all apple varieties into full bloom nearly together. This was followed by cooler weather with a light to heavy frost in some localities. There was no noticeable injury in the College orchards but reports indicate that many orchards in limited areas over the state were severely injured. There are evidently some orchards in which the crop was destroyed. Our peach orchards promise a fair crop. Early strawberry bloom was injured but the total crop will not be reduced."

ERRATA — A typographical error appeared in the April bulletin, No. 568, in that the cover page was marked "May".

P. C. STONE, *Observer* C. I. GUNNESS, *Meteorologist*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 570 June, 1936

Meteorological Observations

FOR

JUNE

1936

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	83	3 P	51	0 A	67.0	54	12.7	se	185	18				
2	86	2 P	60	6 A	73.0	65	15.1	s	219	18				
3	90	2 P	63	2 A	76.5	76	13.3	s	142	28	4-30 P	12 P	1.09	
4	77	3 P	56	12 P	66.5	59	2.3	w	73	12	0 A	1-30 A	.01	
5	83	4 P	47	5 A	65.0	48	15.2	nw	88	11				
6	85	4 P	47	6 A	66.0	55	15.2	s	49	9				
7	82	4 P	50	5 A	66.0	55	15.2	s	99	8				
8	85	4 P	57	6 A	71.0	75	6.8	sw	76	6				
9	86	3 P	57	5 A	71.5	67	14.9	se	87	10				
10	82	4 P	56	5 A	69.0	73	2.6	s	48	5				
11	82	2 P	65	5 A	73.5	75	6.0	s	93	18	4 P	4-30 P	.31	
12	76	12 M	63	12 P	69.5	73	3.2	n	153	18	2 A	5 A	.14	
13	77	2 P	61	6 A	69.0	77	0.6	e	107	9				
14	65	5 P	59	10 A	62.0	85	0.0	n	80	7	8 A	2-30 P	.24	
15	71	6 P	60	2 A	65.5	88	0.0	nw	77	20	1 A	8-30 P	.64	
16	74	3 P	47	12 P	60.5	53	15.3	w	235	22				
17	79	4 P	40	5 A	59.5	55	15.3	s	109	12				
18	67	8 A	61	2 A	64.0	85	0.0	se	178	22	8-30 A	7-30 P	.62	
19	72	6 P	63	0 A	67.5	86	0.0	se	125	10	2-30 A	3 P	.02	
20	85	3 P	65	5 A	75.0	78	8.0	s	160	12				
21	82	1 P	52	12 P	67.0	50	7.5	nw	153	14				
22	73	6 P	45	5 A	59.0	49	15.3	nw	104	25				
23	77	5 P	44	5 A	60.5	49	11.8	se	71	11				
24	76	1 P	51	7 A	63.5	68	1.5	e	127	15	2 A	2-30 A	.01	
25	85	5 P	54	5 A	69.5	55	13.8	nw	96	11			T	
26	83	4 P	59	5 A	71.0	66	7.0	nw	171	20				
27	71	7 P	64	6 A	67.5	86	0.9	se	101	10	3 A	2-30 P	.18	
28	76	3 P	56	12 P	66.0	63	6.0	s	162	36	1-30 A	7 A	.02	
29	73	4 P	50	3 A	61.5	56	12.3	w	218	28				
30	80	4 P	55	6 A	67.5	44	14.2	w	134	18				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

MONTHLY SUMMARY

June, 1936		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.29, 23rd	30.31	30.54, 1889
Minimum	29.43, 28th	29.56	29.24, 1902
Mean semi-daily	29.855	29.961	
Range	0.86	.75	1.27, 1902; 0.52, 1916
Air Temperature			
Highest	90, 3rd	91.1	101.0, 1919
Lowest	40, 17th	40.0	34.0, 1891
Mean	67	65.4	
Monthly range	50	51.2	
Highest mean daily	76.5, 3rd		
Lowest mean daily	59, 22nd		
Mean maximum	78.8		
Mean minimum	55.3		
Greatest daily range	39, 17th		
Least daily range	6, 14th, 18th		
Precipitation			
Precipitation. In inches	3.28	3.54	9.68, 1922; 0.76, 1908
Snow, in inches			
Maximum precipitation in 24 hrs.	1.10, 3rd and 4th		
Number of days on which .01 or more inches of rain fell	11	10	17, 1922; 4, 1908
Wind (miles)			
Total movement	3720	3,584	4,571, 1908; 1,409, 1906
Greatest daily movement	235, 16th		
Least daily movement	48, 10th		
Mean hourly velocity	5.2	5.0	
Maximum velocity for 5 min.,	36, 28th	23	40, 1932
Wind (direction)			
Prevailing direction	ssw	wsw	
North, days	2		
Northeast, days	0		
East, days	2		
Southeast, days	6		
South, days	9		
Southwest, days	1		
West, days	4		
Northwest, days	6		
Weather			
Mean relative humidity, per cent	65.6	66.7	
Mean cloudiness, per cent	54	50.1	71, 1903; 28, 1908
Number of clear days	14	9	22, 1908; 1, 1907, 1926
Number of fair days	6	13	23, 1912; 4, 1895, 1903
Number of cloudy days	10	8	22, 1903; 1, 1923
Number of hours bright sunshine	252	257.4	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	55.1	56.2	
Thunder and Lightning	3rd, 11th, 18th		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1935. The third column gives extremes observed from 1889 to 1935.

REMARKS

The weather during June was near normal in most respects. The mean temperature for the month was slightly higher than normal, being 67 degrees. The normal for June is 65.4 degrees. The first half of the month was considerably warmer than usual, while the latter half was slightly cooler than normal. The rainfall for the month was 3.28 inches which is .26 inch less than normal. The total precipitation since January 1 is 25.26 inches, the normal being 20.89 inches. There were 252 hours of bright sunshine which is only 5.4 hours less than normal. The mean relative humidity was 65.6 per cent which is 1.1 per cent lower than usual. The total wind movement for the month was 3720 miles as compared to a normal of 3584 miles.

Dr. J. K. Shaw makes the following comments in regard to the fruit crop:

> "Cold weather following bloom interfered with a full set of apples, although most orchards have a fair crop. A few scattered orchards in the state suffered heavy or complete loss of crop from frost. The effect of the recent severe winters is still seen in Baldwins and other non-hardy varieties in weakened wood and light crops. Peaches set enough for a good crop on trees not suffering severely from cold winters. Frost, dry weather following set, and rot favored by rain during the ripening period reduced the strawberry crop somewhat. Sweet cherries still show signs of cold winters but sour cherry trees have a good crop. Raspberry plants were not abnormally injured by the winter and carry a good crop."

P. J. Spear, *Observer* C. I. Gunness, *Meteorologist*

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 571 July, 1936

Meteorological Observations

FOR

JULY

1936

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum.		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	80	7 P	44	6 A	62.0	55	15.3	nw	92	12				
2	84	7 P	50	7 A	67.0	61	13.7	s	61	10				
3	76	5 P	60	6 A	68.0	68	1.5	se	121	12				
4	81	5 P	64	6 A	72.5	65	9.0	nw	126	14				
5	85	3 P	51	5 A	68.0	55	12.7	nw	99	15				
6	80	5 P	58	5 A	69.0	61	13.6	n	140	11				
7	88	3 P	59	3 A	73.5	55	14.0	sw	87	10				
8	98	4 P	65	5 A	81.5	48	12.5	w	156	15				
9	93	4 P	67	12 P	80.0	80	4.5	sw	103	44	7-30 A	10-30 P	.29	
10	96	6 P	66	6 A	81.0	74	14.2	w	89	12	3-30 A	4 A	.01	
11	89	1 P	70	7 A	79.5	78	4.5	w	106	11	6 P	6-30 P	.03	
12	81	3 P	68	4 A	74.5	78	2.9	w	84	12	3 A	1-30 P	.03	
13	88	2 P	66	5 A	77.0	75	12.0	nw	84	15	7-30 P	8-30 P	.04	
14	94	4 P	69	2 P	81.5	63	12.0	n	144	17				
15	82	4 P	57	5 A	69.5	51	14.5	e	188	22				
16	82	5 P	52	4 A	67.0	49	15.0	e	129	18				
17	83	3 P	53	5 A	68.0	55	14.0	ne	61	12				
18	81	3 P	62	6 A	71.5	64	8.5	s	85	9	6 P	7-30 P	.13	
19	82	4 P	58	5 A	70.0	69	13.0	n	95	15	1 A	1-30 A	.01	
20	74	1 P	53	6 A	63.5	71	4.6	s	97	14			T	
21	76	1 P	59	4 A	67.5	74	3.2	n	95	15			T	
22	82	4 P	51	4 A	66.5	56	14.9	sw	67	9				
23	81	4 P	51	2 A	66.0	73	2.2	se	200	18				
24	78	4 P	65	12 P	71.5	84	2.0	s	182	17	3-30 A	7 P	.88	
25	78	3 P	54	6 A	66.0	73	12.6	sw	99	32	5-30 A	6 A	.01	
26	80	4 P	51	6 A	65.5	57	13.2	w	146	17	2-30 A	10-30 A	.02	
27	84	6 P	50	5 A	67.0	66	9.0	w	64	9				
28	90	3 P	58	6 A	74.0	60	14.2	sw	90	13				
29	85	4 P	66	12 P	75.5	57	11.6	sw	144	18				
30	75	2 P	59	5 A	67.0	49	13.6	nw	199	32				
31	82	3 P	47	5 A	64.5	52	14.5	nw	38	7				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

P. J. SPEAR, *Observer*

MONTHLY SUMMARY

July, 1936		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.23, 31st	30.28	30.50, 1892
Minimum	29.47, 14th	29.60	29.27, 1932
Mean semi-daily	29.866	29.972	
Range	0.76	.68	0.97, 1892; 0.51, 1895, 1899
Air Temperature			
Highest	98, 8th	93.9	104.0, 1911
Lowest	44, 1st	45.5	40.0, 1890, 1898
Mean	70.8	70.6	
Monthly range	54	48.4	
Highest mean daily	81.5, 8th, 14th		
Lowest mean daily	62, 1st		
Mean maximum	83.5		
Mean minimum	58.2		
Greatest daily range	36, 1st		
Least daily range	13, 12th, 24th		
Precipitation			
Precipitation. In inches	1.45	4.33	14.51, 1897; 0.70, 1929
Snow, in inches			
Maximum precipitation in 24 hrs.	.88, 24th		
Number of days on which .01 or more inches of rain fell	10	11	20, 1915; 4, 1924
Wind (miles)			
Total movement	3471	3,435	5,097, 1909; 1,109, 1894
Greatest daily movement	200, 23rd		
Least daily movement	38, 31st		
Mean hourly velocity	4.7	4.6	
Maximum velocity for 5 min.,	44, 9th	24	39, 1908, 1915
Wind (direction)			
Prevailing direction	w	sw	
North, days	4		
Northeast, days	1		
East, days	2		
Southeast, days	2		
South, days	4		
Southwest, days	6		
West, days	6		
Northwest, days	6		
Weather			
Mean relative humidity, per cent	63.7	68.6	
Mean cloudiness, per cent	51	50.1	69, 1914; 31, 1924
Number of clear days	20	9	22, 1923; 0, 1915
Number of fair days	5	14	24, '09, '21; 5, '89, '23, '28
Number of cloudy days	6	8	18, 1889; 0, 1910
Number of hours bright sunshine	323	267.0	371, 1910; 182, 1889
Percent of possible hours of bright sunshine	70	57.8	
Thunder and Lightning	9th, 11th, 13th, 18th, 24th		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1935. The third column gives extremes observed from 1889 to 1935.

REMARKS

The weather during July was clear and dry. The mean temperature was .2 of a degree higher than normal, being 70.8 degrees. The highest temperature was 98 degrees on the 8th and on only four additional days did the temperature reach 90 degrees. Only 1.45 inches of rain fell during the month, the normal rainfall for July being 4.33 inches. Only once since the station was established in 1889 has less rain fallen in July. In 1929 the rainfall in July was 0.70 inch. Only once during the time that the records were taken at Amherst College from 1836 to 1888 was less rain recorded in July. In 1864 it was 0.96 inch. The total precipitation since January 1 is now 26.71 inches compared with a normal of 25.22 inches for this period. During the months of May, June and July the rainfall for the current year was 6.49, the normal being 11.50 inches. There were 323 hours of bright sunshine as compared to a normal of 267 hours. Twenty days classified as "clear," while usually we have 9 "clear" days in July. The mean relative humidity was 63.7 per cent. The normal relative humidity for July is 68.6 per cent. On July 9 a wind velocity of 44 miles per hour was recorded, which is the highest velocity recorded in July at this station. There was thunder and lightning on the 9th, 11th, 13th, 18th and 24th.

Dr. J. K. Shaw makes the following statement in regard to the fruit crop:

> "The harvest of the common small fruits is nearly over, and crops were not heavy. There has been too much dry weather. Cultivated blueberries are not attaining their usual size. The "June drop" of Baldwins was unusually severe and prolonged. This is ascribed to insufficient water supply because of winter-injured wood and dry weather. Apple varieties generally are showing good size of fruit for the season. Rainfall has been insufficient for the best development but not so light as to injure the trees, except on very dry spots."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 572 August, 1936

Meteorological Observations

FOR

AUGUST

1936

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	86	3 P	51	6 A	68.5	44	14.5	sw	59	10				
2	90	3 P	55	4 A	72.5	44	11.5	sw	87	15	1 A	1-30 A	.02	
3	92	2 P	60	3 A	76.0	50	9.3	se	75	10				
4	92	12 M	68	12 P	80.0	64	2.7	s	125	28	4 P	6-30 P	.21	
5	84	3 P	62	5 A	73.0	51	13.8	w	116	14				
6	66	0 A	57	12 M	61.5	84	0.0	ne	102	13	2 A	2 P	.89	
7	82	5 P	52	5 A	67.0	71	14.3	w	47	8	1-30 A	2 A	.01	
8	85	4 P	60	3 A	72.5	68	10.0	s	77	9				
9	84	3 P	54	5 A	69.0	62	14.2	se	96	10				
10	85	3 P	58	4 A	71.5	79	7.2	s	127	18	5 P	12 P	.34	
11	80	3 P	59	6 A	69.5	81	10.5	nw	81	10	0 A	1 A	.01	
12	84	4 P	58	5 A	71.0	77	9.3	sw	55	7	4 A	4-30 A	.01	
13	89	4 P	58	4 A	73.5	72	10.1	sw	95	9				
14	87	5 P	62	7 A	74.5	68	11.7	nw	70	13				
15	84	3 P	70	3 A	77.0	89	1.8	s	162	17	6 A	5-30 P	.28	
16	93	3 P	72	5 A	82.5	72	12.7	s	126	10				
17	85	11 A	55	12 P	70.0	63	11.9	n	160	25				
18	81	4 P	49	6 A	65.0	64	13.8	w	109	10				
19	83	3 P	63	4 A	73.0	76	4.0	s	168	18				
20	83	3 P	60	12 P	71.5	57	9.3	ne	148	20	1 A	1-30 A	.02	
21	76	11 A	55	5 A	65.5	64	2.9	w	95	20	5 P	12 P	.67	
22	62	4 P	55	4 A	58.5	84	0.0	ne	117	7	0 A	5-30 A	.50	
23	79	2 P	58	3 A	68.5	84	2.5	se	76	20			T	
24	84	4 P	64	12 P	74.0	58	13.5	se	197	22				
25	84	2 P	57	12 P	70.5	60	10.2	sw	136	22	10-30 P	12 P	.03	
26	81	4 P	53	6 A	67.0	60	11.6	w	105	13	0 A	2 A	.05	
27	75	3 A	52	12 P	63.5	55	13.5	n	118	11				
28	76	3 A	49	6 A	62.5	64	10.8	n	63	17				
29	63	4 P	58	7 A	60.5	94	0.0	ne	163	18	12-30 A	12 P	1.68	
30	78	1 P	58	12 P	68.0	77	6.1	sw	104	14	0 A	1-30 A	.13	
31	69	1 P	55	5 A	62.0	69	2.3	sw	103	20			T	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

P. J. SPEAR, *Observer*

MONTHLY SUMMARY

August, 1936		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.33, 1st	30.32	30.48, 1918
Minimum	29.68, 30th	29.63	28.87, 1930
Mean semi-daily	30.005	30.00	
Range	0.65	.69	1.49, 1930; 0.44, 1894
Air Temperature			
Highest	93, 16th	91.3	100.0, 1918
Lowest	49, 18th, 28th	42.9	37.0, 1894, 1908
Mean	69.7	68.4	
Monthly range	44	48.4	
Highest mean daily	82.5, 16th		
Lowest mean daily	58.5, 22nd		
Mean maximum	81.4		
Mean minimum	58.0		
Greatest daily range	35, 1st, 2nd		
Least daily range	5, 29th		
Precipitation			
Precipitation. In inches	4.85	4.24	8.40, 1928; 0.31, 1894
Snow, in inches			
Maximum precipitation in 24 hrs.	1.80, 29th, 30th		
Number of days on which .01 or more inches of rain fell	15	10	16, 1892, 1933; 4, 1889
Wind (miles)			
Total movement	3362	3,099	4,271, 1910; 1,920, 1894
Greatest daily movement	197, 24th		
Least daily movement	47, 7th		
Mean hourly velocity	4.5	4.2	
Maximum velocity for 5 min.,	28, 4th	21	35, 1915
Wind (direction)			
Prevailing direction	sw	sw	
North, days	3		
Northeast, days	4		
East, days	0		
Southeast, days	4		
South, days	6		
Southwest, days	7		
West, days	5		
Northwest, days	2		
Weather			
Mean relative humidity, per cent	67.9	69.8	
Mean cloudiness, per cent	51	49.4	67, 1901; 27, 1923
Number of clear days	17	9	17, 1921; 0, 1915
Number of fair days	5	13	25, 1912; 5, 1893, 1933
Number of cloudy days	9	9	18, '01, '28; 2, '10, '23
Number of hours bright sunshine	266	237.0	317, 1921; 152, 1915, 1929
Percent of possible hours of bright sunshine	62.0	55.2	
Thunder and Lightning	4th, 10th, 15th, 21st		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1935. The third column gives extremes observed from 1889 to 1935.

REMARKS

August was marked with a large amount of sunshine and clear weather. The mean temperature was 69.7 degrees compared to a normal of 68.4 degrees. The highest temperature was 93 degrees on the 16th and the lowest, 49 degrees on the 18th and 28th. The mean relative humidity was 2 per cent lower than normal. The rainfall was .61 inch higher than normal, the majority of this falling in three storms with a total of 3.87 inches. Two of these storms occurred the last 11 days of the month. Rain fell on 15 days and the total for the month was 4.85 inches compared to a normal of 4.24 inches. The total precipitation since January 1 is now 31.56 inches and the normal for this period is 29.46 inches. During the months of May, June, July and August the rainfall for the current year was 11.34 inches, the normal being 15.74 inches. There were 266 hours of bright sunshine, the normal being 237 hours. Seventeen days classified as "clear," the normal for August being 9. This has been equaled only once in August with 17 days in 1921. The total wind movement during the month was 3362 miles, the normal being 3099 miles. The highest velocity was 28 miles on the 4th.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 573 September, 1936

Meteorological Observations

FOR

SEPTEMBER

1936

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	72	3 P	47	12 P	59.5	61	11.9	w	146	15				
2	60	4 P	44	3 A	52.0	88	0.0	w	45	11	9 A	8 P	.20	
3	74	3 P	54	12 P	64.0	80	7.3	nw	79	11				
4	73	3 P	49	5 A	61.0	67	10.2	n	190	17				
5	71	4 P	47	6 A	59.0	71	11.5	n	47	6				
6	79	2 P	47	6 A	63.0	70	13.0	se	108	10				
7	80	2 P	55	5 A	67.5	76	2.9	s	139	8				
8	88	4 P	60	12 P	74.0	76	6.9	sw	137	18	6 P	7-30 P	1.15	
9	81	2 P	59	6 A	70.0	79	12.8	s	91	14				
10	83	3 P	57	5 A	70.0	76	8.5	ne	71	10				
11	78	3 P	61	1 A	69.5	84	3.3	se	89	8				
12	81	3 P	65	3 A	73.0	82	0.0	se	129	14	3-30 P	5 P	.87	
13	76	1 P	56	12 P	66.0	70	5.1	nw	141	12				
14	69	2 P	47	5 A	58.0	59	11.4	e	94	9				
15	61	12 P	55	6 A	58.0	88	0.0	se	110	8	3-30 A	9 A	.05	
16	80	1 P	61	0 A	70.5	79	6.5	se	186	13				
17	75	2 P	57	12 P	66.0	76	6.1	nw	142	11			T	
18	62	12 M	54	8 P	58.0	82	0.0	nw	171	22	9-30 A	12 P	.57	
19	74	2 P	53	2 A	63.5	72	8.2	nw	296	20	0 A	3-30 A	.39	
20	72	1 P	45	6 A	58.5	79	8.7	se	74	11				
21	68	2 P	58	6 A	63.0	91	0.0	se	148	8	1-30 A	7-30 A	.02	
22	80	3 P	58	7 A	69.0	77	7.3	s	53	4				
23	79	2 P	56	4 A	67.5	90	3.2	s	66	9				
24	78	2 P	58	12 P	68.0	87	4.6	se	142	28	6 P	10 P	.41	
25	62	3 P	40	12 P	51.0	70	9.8	w	297	22				
26	66	3 P	32	7 A	49.0	77	12.0	s	71	8				
27	68	12 P	47	1 A	57.5	82	0.0	s	151	20	11-30 P	12 P	.01	
28	70	3 A	59	7 A	64.5	64	6.7	nw	260	20	0 A	1-30 A	.02	
29	65	3 P	36	7 A	50.5	66	5.0	w	88	13				
30	57	2 P	38	7 A	47.5	67	2.1	se	118	13	7-00 P	12 P	.11	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

P. J. SPEAR, *Observer*

MONTHLY SUMMARY

September, 1936		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.49, 14th	30.45	30.65, 1924
Minimum	29.59, 24th	29.59	29.32, 1900
Mean semi-daily	30.100	30.068	
Range	0.90	.86	1.20, 1904; 0.57, 1910
Air Temperature			
Highest	88, 8th	87.4	97.0, 1895, 1929
Lowest	32, 26th	32.8	24.5, 1914
Mean	62.3	61.6	
Monthly range	56	54.6	
Highest mean daily	74, 8th		
Lowest mean daily	47.5, 30th		
Mean maximum	72.7		
Mean minimum	51.8		
Greatest daily range	32, 6th		
Least daily range	6, 15th		
Precipitation			
Precipitation. In inches	3.80	3.79	12.34, 1933; 0.52, 1914
Snow, in inches			
Maximum precipitation in 24 hrs.	1.15, 8th		
Number of days on which .01 or more inches of rain fell	11	9	15, 1918; 3, 1903
Wind (miles)			
Total movement	3879	3,252	4,686, 1896; 1,414, 1894
Greatest daily movement	297, 25th		
Least daily movement	45, 2nd		
Mean hourly velocity	5.4	4.5	
Maximum velocity for 5 min.,	28, 24th	22	39, 1915, 1934
Wind (direction)			
Prevailing direction	s	wsw	
North, days	2		
Northeast, days	1		
East, days	1		
Southeast, days	9		
South, days	6		
Southwest, days	1		
West, days	4		
Northwest, days	6		
Weather			
Mean relative humidity, per cent	76.2	73.2	
Mean cloudiness, per cent	57	48.7	70.0, 1934; 27, 1908, 1914
Number of clear days	9	9	19, 1932; 2, 1907, 1928
Number of fair days	11	11	19, 1908; 3, 1889
Number of cloudy days	10	10	20, 1934, 4, '08, '16
Number of hours bright sunshine	185	202.5	255, 1916; 106, 1934
Percent of possible hours of bright sunshine	49.6		
Thunder and Lightning	2nd, 8th, 12th	54.4	
Frosts	26th		
First Frost	26th	19th	Aug. 22, '94, '95; Oct. 13, '09

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1935. The third column gives extremes observed from 1889 to 1935.

REMARKS

The weather during September was very nearly normal in all respects with slightly higher temperatures than usual. The mean temperature for the month was 62.3 degrees, the normal being 61.6 degrees. The rainfall was 3.80 inches which is only one hundredth more than normal. The total precipitation since January 1 is now 35.36 inches, the normal for this period being 33.25 inches. There was less sunshine than usual with 185 hours of bright sunshine, the normal for September being 202.5 hours. There was a very light frost on the 26th with a temperature of 32 degrees. The normal date for the first frost is September 19. The total wind movement for the month was 3879 miles, the prevailing direction being south. The normal wind movement for September is 3252 miles and the prevailing direction west southwest. There was thunder and lightning on the 2nd, 8th, and 12th.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 574 October, 1936

Meteorological Observations

FOR

OCTOBER

1936

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day	Degrees	Time	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	56	4 P	45	6 A	50.5	94	0.2	n	102	12	0 A	12 M	1.87	
2	67	2 P	40	12 P	53.5	80	11.7	nw	74	10				
3	63	3 P	32	7 A	47.5	74	11.7	w	74	17				
4	65	3 P	32	7 A	48.5	71	11.6	se	68	5				
5	70	2 P	39	7 A	54.5	79	10.0	se	102	7				
6	66	12 M	41	6 A	53.5	80	2.5	se	97	9				
7	69	12 M	58	5 A	63.5	88	0.0	se	156	12	1 P	2-30 P	.04	
8	76	3 P	49	12 P	62.5	71	11.5	w	116	15				
9	75	3 P	40	5 A	57.5	74	11.4	w	53	5				
10	62	7 P	50	0 A	56.0	95	0.0	sw	44	7	5 A	11 P	.44	
11	68	10 A	53	12 P	60.5	72	2.0	w	159	15	4 A	4-30 A	.01	
12	56	9 A	36	12 P	46.0	51	6.1	w	236	27			T	
13	46	12 M	29	5 A	37.5	63	1.1	sw	76	6				
14	42	0 A	39	7 A	40.5	89	0.0	nw	44	5	8 A	8 P	0.4	
15	61	5 P	42	0 A	51.5	85	0.0	se	56	8			T	
16	71	12 M	57	5 A	64.0	82	1.5	s	144	12				
17	67	3 P	58	12 P	62.5	84	0.0	se	217	28	1 A	2 P	1.57	
18	58	0 A	42	12 P	50.0	65	1.0	w	206	22	0 A	2 A	.16	
19	55	3 P	40	4 A	47.5	67	0.5	s	118	18				
20	77	3 P	39	6 A	58.0	63	10.9	se	117	8				
21	77	1 P	54	7 A	65.5	69	10.9	se	200	15				
22	74	1 P	57	2 A	65.5	80	7.0	se	182	12				
23	63	0 A	42	9 P	52.5	92	0.0	nw	162	16	4-30 A	12 P	.36	
24	52	3 P	34	12 P	43.0	74	5.0	nw	133	17	0 A	8 A	.16	
25	58	2 P	28	7 A	43.0	69	10.7	nw	72	12				
26	58	2 P	29	12 P	43.5	79	0.0	s	275	29	10 A	12 M	.25	
27	42	3 P	21	7 A	31.5	57	10.6	n	195	17				
28	50	3 P	17	7 A	33.5	62	10.6	s	71	8				
29	55	3 P	27	2 A	41.0	67	9.0	s	69	10			T	
30	51	10 A	37	7 A	44.0	66	6.0	s	216	23				
31	51	2 P	31	7 A	41.0	51	10.5	se	184	16				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

P. J. SPEAR, *Observer*

MONTHLY SUMMARY

October, 1936		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.61, 14th	30.53	30.68, 1929
Minimum	29.17, 17th	29.42	29.00, 1926
Mean semi-daily	30.094	30.059	
Range	1.44	1.11	1.47, 1926; 0.76, 1899
Air Temperature			
Highest	77, 20th, 21st	79.7	90.5, 1908
Lowest	17, 28th	23.4	18.0, 1904
Mean	50.6	50.4	
Monthly range	60	56.3	
Highest mean daily	65.5. 21st, 22nd		
Lowest mean daily	31.5, 27th		
Mean maximum	61.3		
Mean minimum	39.9		
Greatest daily range	38, 20th		
Least daily range	2, 17th		
Precipitation			
Precipitation. In inches	4.90	3.35	8.81, 1911; 0.01, 1924
Snow, in inches			
Maximum precipitation in 24 hrs. 1.87, 1st			
Number of days on which .01 or more inches of rain fell	10	8	15, 1913; 1, 1897, 1924
Wind (miles)			
Total movement	4018	4,023	5,467, 1910; 2,540, 1894
Greatest daily movement	275, 26th		
Least daily movement	44, 10th, 14th		
Mean hourly velocity	5.4	5.4	
Maximum velocity for 5 min.,	29, 26th	27	39, 1934, 1935
Wind (direction)			
Prevailing direction	ssw	w	
North, days	2		
Northeast, days	0		
East, days	0		
Southeast, days	10		
South, days	6		
Southwest, days	2		
West, days	6		
Northwest, days	5		
Weather			
Mean relative humidity, per cent	74.2	68.4	
Mean cloudiness, per cent	48	47.6	67, 1932; 18, 1924
Number of clear days	13	8	16, 1934; 1, 1911
Number of fair days	4	11	17, '24; 5, '94, '96, '98, '03,' 17, '34, '35
Number of cloudy days	14	12	19, 1896; 3, 1924
Number of hours bright sunshine	174	171.0	232, 1923; 91, 1913
Percent of possible hours of bright sunshine	51	50.1	
Frosts, 13th, 25th, 26th, 27th, 28th, 29th, 31st			

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1935 The third column gives extremes observed from 1889 to 1935.

REMARKS

The weather during October was practically normal in temperature, with more rain than usual and a normal amount of sunshine. The mean temperature for the month was 50.6 degrees which is only .2 of a degree higher than normal. The highest temperature was 77 degrees on the 20th and 21st. The lowest was 17 degrees on the 28th. This is the lowest temperature recorded at this station in October. The nearest approach to it was a temperature of 18 degrees on October 31, 1904. The total precipitation during the month was 4.90 inches, the normal for October being 3.35 inches. The total precipitation for the year is now 40.26 inches, the normal for this period being 36.60 inches. There were 174 hours of bright sunshine which is 3 hours more than normal. Total wind movement for the month was 4018 miles which is 5 miles less than normal. The mean relative humidity for the month was 74.2 per cent, the normal being 68.4 per cent.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 575 November, 1936

Meteorological Observations

FOR

NOVEMBER

1936

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	60	3 P	42	0 A	51.0	61	0.2	se	168	12				
2	58	9 P	47	8 A	52.5	94	1.0	w	38	9	4.30 A	12 P	0.16	
3	71	2 P	57	0 A	64.0	76	3.5	se	248	17	0 A	12 P	0.04	
4	64	0 A	47	12 P	55.5	95	0.0	n w	143	10	0 A	8 P	0.34	
5	50	12 M	30	12 P	40.0	73	7.5	n w	240	22	0 A	5 A	0.62	
6	52	3 P	28	7 A	40.0	67	10.1	n w	111	12				
7	46	2 P	30	0 A	38.0	77	0.2	w	29	2				
8	54	12 M	41	7 A	47.5	82	3.0	s	58	12	2.30 P	8 P	0.32	
9	50	3 P	29	12 P	39.5	63	10.0	n w	127	14				
10	46	11 A	28	3 A	37.0	60	7.5	n w	196	28				
11	47	2 P	20	7 A	33.5	46	10.0	se	114	8				
12	49	1 P	25	8 A	37.0	69	6.5	s	105	11				
13	53	2 P	27	7 A	40.0	74	8.0	n	99	14				
14	54	1 P	28	7 A	41.0	74	7.0	se	173	16			T	
15	52	1 P	36	12 P	44.0	69	8.0	nw	142	12	0 A	1 A	0.01	
16	37	1 A	19	12 P	28.0	53	6.5	nw	383	32				
17	47	12 P	15	3 A	31.0	55	4.0	s	247	15				
18	47	0 A	12	12 P	29.5	50	9.7	n w	349	29				
19	34	3 P	10	5 A	22.0	49	9.6	nw	130	13				
20	40	12 P	31	0 A	35.5	56	0.0	s e	163	14				
21	61	1 P	40	0 A	50.5	54	8.5	nw	172	18				
22	40	0 A	26	12 P	33.0	61	5.5	nw	190	16				
23	33	3 P	21	12 P	27.0	60	9.5	nw	198	20				
24	29	4 P	10	12 P	19.5	93	0.0	n	65	7	3 A	10 P	0.32	2.75
25	32	12 P	5	3 A	18.5	94	1.0	nw	24	5	5 A	12 P	0.07	
26	34	1 P	22	12 P	28.0	59	3.0	nw	175	21	0 A	8 A	0.13	T
27	26	2 P	12	12 P	19.0	63	9.4	nw	153	13				
28	29	8 P	5	7 A	17.0	79	0.0	se	118	11	6 P	8 P	0.01	T
29	38	1 P	25	8 A	31.5	73	2.3	w	146	13				
30	27	0 A	11	12 P	19.0	62	9.5	w	320	21				
31														

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

P. C. STONE, *Observer*

MONTHLY SUMMARY

November, 1936		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.67, 6th	30.58	30.87, 1932
Minimum	29.34, 15th	29.34	28.73, 1904
Mean semi-daily	30.030	30.046	
Range	1.33	1.29	1.84, 1904; 0.94, 1935
Air Temperature			
Highest	71, 3rd	65.3	75.0, 1924
Lowest	5, 25th, 28th	13.8	3.5, 1891
Mean	35.7	38.6	
Monthly range	66	51.4	
Highest mean daily	64, 3rd		
Lowest mean daily	17, 28th		
Mean maximum	45.3		
Mean minimum	26.0		
Greatest daily range	35, 18th		
Least daily range	9, 20th		
Precipitation			
Precipitation. In inches	2.02	3.45	8.64, 1927; 0.63, 1917
Snow, in inches	2.75	2.05	9,24; t, 89, 93, 03, 12, 18, 19 22, 27, 32, 34
Maximum precipitation in 24 hrs.	0.62, 5th		
Number of days on which .01 or more inches of precipitation	10	9	22, 1921; 2, 1904
Wind (miles)			
Total movement	4824	4,564	5,978, 1906; 2,589, 1889
Greatest daily movement	383, 16th		
Least daily movement	24, 25th		
Mean hourly velocity	6.7	6.3	
Maximum velocity for 5 min.,	32, 16th	29	40, 1915
Wind (direction)			
Prevailing direction	wnw	w	
North, days	2		
Northeast, days	0		
East, days	0		
Southeast, days	6		
South, days	3		
Southwest, days	0		
West, days	4		
Northwest, days	15		
Weather			
Mean relative humidity, per cent.	68	70.4	
Mean cloudiness, per cent	48.3	53.5	72, 1900, '27; 34, 1917
Number of clear days	14	6	15, 03; 1, '00 '11 '27
Number of fair days	6	9	16, '12; 4, '89, '30, '32, '35
		15	24, '27; 9, '90, 05, '17
Number of cloudy days	10	121.0	182, 1903; 66, 1927
Number of hours bright sunshine	161		
Percent of possible hours of bright sunshine	55	41.3	
First snow	Nov. 24th	Nov. 5	Oct. 10, '25; Nov. 27, '31

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1935. The third column gives extremes observed from 1889 to 1935.

REMARKS

The outstanding feature of the weather during November was the unusually low temperatures recorded during the latter part of the month. The lowest temperature was 5° on the 25th and 28th. This has been exceeded only three times since the station was established in 1889, with 3.5° in 1891, 4.5° in 1914 and 4.5° in 1924; and has been equalled only twice, with 5° in 1897 and 1930. The mean temperature for the month was 35.7°, while the normal is 38.6°. The highest temperature was 71° on the 3rd. There was skating on the college pond on the 24th.

The total precipitation during the month was 2.02 inches, with 2.75 inches of snow. The normal precipitation for November is 3.45 inches, with 2.05 inches of snow. The total precipitation since January 1 is now 42.28 inches compared with a normal of 40.05 inches. The first snow fell on November 24, the normal date being November 5. This is within three days of the latest date ever recorded for first snowfall, which was November 27, 1931.

The total sunshine recorded for the month was 161 hours which is 40 hours greater than normal.

The mean relative humidity for the month was 68 per cent, while the normal is 70.4 per cent.

The total wind movement for November was 4824 miles compared with a normal of 4564 miles.

Errata: In the October bulletin the rainfall on October 14 should read .04 instead of .40.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 576 December, 1936

Meteorological Observations

FOR

DECEMBER

1936

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	25	3 P	7	8 A	16.0	73	9.3	nw	139	14				
2	35	12 P	10	0 A	22.5	94	0.0	nw	71	10	7 A	12 P	1.26	2.50
3	40	2 P	33	9 P	36.5	83	0.0	nw	156	20	0 A	1 A	0.04	
4	35	2 P	28	10 P	31.5	74	6.0	nw	129	12				
5	34	2 P	20	12 P	27.0	64	8.0	n	233	23				
6	40	12 P	20	0 A	30.0	81	0.0	n	57	4	1 P	1 P	0.69	
7	46	1 A	16	12 P	31.0	52	0.5	n	244	21				
8	25	3 P	9	8 A	17.0	50	9.1	n	173	14				
9	29	12 P	19	0 A	24.0	74	0.0	n	108	8				
10	38	8 P	29	0 A	33.5	90	0.0	n	152	13	8 A	P	0.84	
11	38	7 P	36	4 A	37.0	92	0.0	n	47	5	0 A	P	0.84	
12	40	2 A	31	12 P	35.5	67	0.0	n	204	17			T	
13	38	3 P	24	12 P	31.0	54	7.5	nw	207	13				
14	39	3 P	16	8 A	27.5	74	8.0	se	71	7				
15	46	2 P	28	3 A	37.0	58	7.5	w	157	16				
16	48	1 P	27	5 A	37.5	72	5.5	se	91	12	9 P	P	0.0	
17	49	1 P	30	12 P	39.5	71	6.0	nw	122	17	0 A	8 A	0.1	
18	30	0 A	17	12 P	23.5	52	9.0	nw	272	19				
19	33	12 P	13	4 A	23.0	70	0.0	nw	133	9	6 P	P	0.1	0.50
20	55	9 A	32	12 P	43.5	76	0.0	s	241	20	0 A	8 A	1.3	
21	39	2 P	32	1 A	35.5	53	5.5	w	269	21				
22	32	0 A	14	12 P	23.0	46	8.5	nw	329	24				
23	30	3 P	10	8 A	20.0	52	8.5	s	80	5				
24	50	4 P	26	8 A	38.0	65	1.0	sw	98	14				
25	44	2 P	38	12 P	41.0	82	0.0	s	129	9	8 P	12 P	0.05	
26	41	12 M	34	12 P	37.5	86	0.0	e	56	7				
27	53	12 P	33	1 A	43.0	85	0.0	se	113	12			T	
28	54	4 A	30	12 P	42.0	57	8.8	w	290	26				
29	36	3 P	20	8 A	28.0	55	9.3	nw	146	10	11.30 P	12 P	T	
30	35	12 P	30	0 A	32.5	95	0.0	nw	73	7	8 A	9 P	.11	
31	51	6 P	33	6 A	42.0	93	0.0	se	75	11	8 A	8 P	.37	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

P. C. STONE, *Observer*

MONTHLY SUMMARY

December, 1936		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.77, 9th	30.65	30.96, 1889
Minimum	29.36, 20th	29.25	28.85, 1915
Mean semi-daily	30.265	30.056	
Range	1.41	1.40	1.78, 1895; 1.01, 1892
Air Temperature			
Highest	55, 20th	54.5	65.5, 1908
Lowest	7, 1st	-2.3	-22.5, 1917
Mean	31.8	27.3	
Monthly range	48	56.8	
Highest mean daily	43.5, 20th		
Lowest mean daily	16.0, 1st		
Mean maximum	39.6		
Mean minimum	24.0		
Greatest daily range	30, 7th		
Least daily range	2, 11th		
Precipitation			
Precipitation. In inches	5.96	3.47	7.77, 1901; 0.87, 1896
Snow, in inches	3.00	8.99	26.50, '02; t, 1891
Maximum precipitation in 24 hrs.	1.38, 20th		
Number of days on which .01 or more inches of precipitation	12	9	17, 1902; 4, 1892
Wind (miles)			
Total movement	4665	4,726	6,694, 1925; 3,239, 1918
Greatest daily movement	329, 22nd		
Least daily movement	47, 11th		
Mean hourly velocity	6.3	6.4	
Maximum velocity for 5 min.,	26, 28th	29	45, 1934
Wind (direction)			
Prevailing direction	nw	w	
North, days	8		
Northeast, days	0		
East, days	1		
Southeast, days	4		
South, days	3		
Southwest, days	1		
West, days	3		
Northwest, days	11		
Weather			
Mean relative humidity, per cent	70.7	69.2	
Mean cloudiness, per cent	62.3	53.4	71, 1929, 39, 1919
Number of clear days	11	8	15, 1890; 2, 1922, 1933
Number of fair days	4	10	16, 1909; 4, 1889, 1930, 1931
Number of cloudy days	16	13	19, 1911, 1922; 7, 1909, 1923
Number of hours bright sunshine	118	130.7	172, 1896; 63.1, 1933
Percent of possible hours of bright sunshine	41.7	46.0	
First snow	Nov. 24th	Nov. 5	Oct. 10, '25; Nov. 27, '31

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1935. The third column gives extremes observed from 1889 to 1935.

ANNUAL SUMMARY

Annual. 1936		Normal	Extremes .
Barometer			
(Readings reduced to sea level)			
Maximum	30.77, Dec. 9th	30.81	31.05, 1920
Minimum	29.08, Mar. 21st	28.95	28.47, 1914
Mean semi-daily	30.018	30.016	
Range	1.69	1.86	2.33, 1913; 1.38, 1933
Air Temperature			
Highest	98, July 8th	95.8	104, 1911
Lowest	-12, Feb. 20th	-12.1	-26.0 1904
Mean	47.9	47.2	49.6, 1913; 44.0, 1904
Annual range	110	108.0	
Highest mean daily	82.5, Aug. 16th		
Lowest mean daily	5.5, Feb. 20th		
Mean maximum	58.0	57.8	
Mean minimum	37.6	36.5	
Greatest daily range	42, May 23rd		
Least daily range	2, Oct. 17th, Dec. 11th		
Precipitation			
Precipitation. In inches	48.24	43.49	57.05, 1897; 30.68, 1908
Snow, in inches	47.50	48.38	78.00, 1920; 24.50, 1919
Maximum precipitation in 24 hrs.	2.13, Mar. 18th		
Number of days on which .01 or more inches of precipitation fell	143	123	144, 1902; 96, 1924
Wind (miles)			
Total movement	51,222	52,321	63,571, 1908; 36,257, 1894
Greatest daily movement	400, Jan. 28th		
Least daily movement	24, Nov. 25th		
Mean hourly velocity	5.8	6.0	
Maximum velocity, 5 min.	44, July 9th	35	48, 1932, 1934
Wind (direction)			
Prevailing direction	w	w	
North, days	45		
Northeast, days	8		
East, days	10		
Southeast, days	61		
South, days	61		
Southwest, days	24		
West, days	65		
Northwest, days	92		
Weather			
Mean relative humidity, per cent	68.0	67.5	
Mean cloudiness, per cent	52.7	50.8	60, '98, '01, '02; 41, '08, '24
Number of clear days	169	109	150, 1932; 59, 1927
Number of fair days	64	128	182, 1912; 83, 1894
Number of cloudy days	133	128	179, '01, '02; 71, 1910
Number of hours bright sunshine	2466	2,356	2,838 1924; 1,864, 1902
Percent of possible hours of bright sunshine	55.4	53.0	
Last frost	May 22nd	M'y 12	Apr. 23, 1904; June 8, 1932
First frost	Sept. 26th	S't 19	Aug. 22, '94, '95; Oct. 13, '09
Last snow	April 2nd	Apr14	Mar. 14, '10; May 5, '91, '17
First snow	Nov. 24th	Nov. 5	Oct. 10, '25; Nov. 27, '31

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1935 The third column gives extremes observed from 1889 to 1935.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 577 January, 1937

Meteorological Observations

FOR

JANUARY

1937

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	48	12 M	30	12 P	39.0	54	9.1	w	115	14			T	
2	34	12 M	27	8 A	30.5	76	0.0	n	102	8	3 P	12 P	0.41	2.00
3	36	6 P	33	0 A	34.5	97	0.0	w	76	15	0 A	2 P	0.37	
4	36	1 P	26	10 P	31.0	61	7.0	w	148	18				
5	42	3 P	27	0 A	34.5	54	7.0	s	154	17				
6	29	0 A	18	12 P	23.5	49	9.2	n	181	15				
7	32	12 P	18	0 A	25.0	93	0.0	nw	46	3	6 P	12 P	0.41	
8	38	2 P	32	0 A	35.0	93	0.0	nw	23	4			T	
9	56	12 M	37	0 A	46.5	79	3.0	w	99	20	0 A	8 A	0.02	
10	39	0 A	22	12 P	30.5	85	0.0	nw	98	12	4 A	11-30 P	0.30	1.50
11	32	1 P	13	8 A	22.5	74	9.3	nw	72	9				
12	40	12 M	24	0 A	32.0	71	5.0	se	130	15				
13	46	4 P	26	8 A	36.0	72	9.3	sw	72	5			T	
14	52	12 P	36	0 A	44.0	93	0.0	se	156	11			T	
15	58	4 A	36	12 P	47.0	82	0.0	se	216	25	4-30 A	2 P	0.47	
16	36	0 A	21	12 P	28.5	52	8.0	w	328	22				
17	32	12 P	15	6 A	23.5	85	0.0	nw	62	5	2 P	12 P	0.88	1.25
18	43	8 P	32	0 A	37.5	94	0.0	se	57	7	0 A	10 A	0.07	
19	41	0 A	28	12 P	34.5	61	0.0	nw	109	10				
20	28	0 A	21	8 A	24.5	63	0.0	n	159	15	4-30 P	12 P	0.30	1.50
21	41	12 P	23	0 A	32.0	89	0.0	se	108	10	0 A	1 P	0.33	0.25
22	41	0 A	35	12 P	38.0	88	0.0	s	53	7	2 A	12 P	0.36	
23	35	0 A	20	12 P	27.5	65	4.3	nw	126	12	0 A	8 P	0.05	0.25
24	32	12 P	14	7 A	23.0	81	0.0	nw	154	6	2 P	12 P	0.75	
25	46	2 P	32	0 A	39.0	82	1.0	nw	118	14	2 A	6 A	0.15	
26	38	0 A	26	12 P	32.0	51	6.0	w	220	18				
27	28	4 P	13	12 P	20.5	47	9.8	n	176	12				
28	30	3 P	9	8 A	19.5	58	9.9	nw	44	5				
29	39	2 P	22	0 A	30.5	74	5.1	nw	76	10				T
30	41	3 P	23	8 A	32.0	69	9.0	nw	113	11				
31	35	1 P	20	6 A	27.5	85	0.0	n	48	8	2 P	10 P	0.51	3.00

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1927 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

P. C. STONE, *Observer*

MONTHLY SUMMARY

January, 1937		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.85, 28th	30.71	31.00, 1927
Minimum	29.55, 3rd	29.18	28.55, 1913
Mean semi-daily	30.253	30.07	
Range	1.30	1.54	2.18, 1913; 0.97, 1896
Air Temperature			
Highest	58, 15th	50.4	66.0, 1932
Lowest	9, 28th	-7.4	-26.0, 1904
Mean	31.7	23.8	
Annual range	49	58.2	
Highest mean daily	47, 15th		
Lowest mean daily	19.5, 28th		
Mean maximum	38.8		
Mean minimum	24.5		
Greatest daily range	22, 15th		
Least daily range	3, 3rd		
Precipitation			
Precipitation. In inches	5.38	3.42	7.15, 1898; 1.07, 1896
Snow, in inches	9.75	13	33, 1898, 1923; 1.75, 1911
Maximum precipitation in 24 hrs.	0.88, 17th		
Number of days on which .01 or more inches of precipitation fell	15	11	18, 1923; 4, 1889
Wind (miles)			
Total movement	4,339	5,068	7,770, 1908; 2,896, 1895
Greatest daily movement	328, 16th		
Least daily movement	23, 8th		
Mean hourly velocity	5.8	6.8	
Maximum velocity, 5 min.	25, 15th	30	41, 1911
Wind (direction)			
Prevailing direction	nw	wnw	
North, days	5		
Northeast, days	0		
East, days	0		
Southeast, days	5		
South, days	2		
Southwest, days	1		
West, days	6		
Northwest, days	12		
Weather			
Mean relative humidity, per cent	73.5	69.7	
Mean cloudiness, per cent	63.0	54	78, 1932; 37, 1908
Number of clear days	10	8	16, 1922; 2, 1914
Number of fair days	5	10	18, 1890, 1926; 3, 1916
Number of cloudy days	16	13	22, 1923, 1931; 4, 1920
Number of hours bright sunshine	112	140	214, 1920; 74.2, 1932
Percent of possible hours of bright sunshine	38.1	47.6	

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1936. The third column gives extremes observed from 1889 to 1936.

REMARKS

The weather during January was considerably warmer than usual, with less snow than normal. While there was a total snowfall of 9.75 inches, divided among seven storms, the snow in each case melted very soon after it fell, with the result that the ground was bare practically all of the month. The mean temperature for the month was 31.7 degrees, the normal for January being 23.8 degrees. This high mean temperature has been exceeded only four times since weather records were first taken in 1889. In 1889, 1913, 1932, and 1933 the mean temperatures were 32.9, 34.2, 33.5 and 32.6 respectively. The total number of degree-days for the present heating season is 3520 as compared with a normal of 3849 degree-days. The smallest heat load for this period was in 1931-32 with 3102 degree-days. The highest during the month was 58 degrees on the 15th and the lowest, 9 on the 28th. Normally the lowest temperature during January is –7.4 degrees. The total precipitation for the month was 5.38 inches, the normal being 3.42 inches. The normal snowfall for January is 13 inches. There were 112 hours of bright sunshine compared to a normal of 140 hours. Only four times since 1889 has there been less sunshine in January. In 1914, 1923, 1932 and 1934 there were 95, 76, 74 and 96 hours of bright sunshine respectively.

Dr. Shaw gives the following report in regard to the fruit crop:

> "The cold weather of late November and early December, followed by abnormally warm weather continuing through January, has resulted in some growth of peach buds, but there is yet very little injury. It can not be expected that buds will survive temperatures of –16 degrees or lower, as they did last year. If there are no temperatures below –10 degrees during the next two or three weeks, we may expect a peach crop in 1937. No winter injury to fruit trees has yet been observed. The lack of snow may prove unfavorable to strawberry fields not well mulched, but in general prospects favor a normal fruit crop."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series **Bulletin No. 578** **February, 1937**

Meteorological Observations

FOR

FEBRUARY

1937

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean.			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	35	10 A	23	12 P	29.0	63	3.5	nw	138	15				
2	23	0 A	7	12 P	15.0	53	7.5	nw	310	25				
3	28	4 P	7	0 A	17.5	67	10.0	nw	311	23				
4	30	2 P	6	8 A	18.0	70	10.0	nw	122	18				
5	32	2 P	18	0 A	25.0	83	0.0	nw	93	13			T	T
6	36	2 P	23	8 A	29.5	67	10.0	se	146	12				
7	35	2 P	25	8 A	30.0	54	10.2	w	215	18				
8	31	12 P	24	8 A	27.5	80	0.0	nw	36	5	10 A	12 P	0.40	T
9	36	8 P	31	0 A	33.5	87	0.0	s	29	14	0 A	7 P	0.15	
10	36	3 P	23	12 P	29.5	51	8.5	nw	233	17				
11	25	2 P	17	11 P	21.0	51	7.0	nw	262	26				
12	45	3 P	16	6 A	30.5	62	5.0	se	133	13				
13	55	1 P	34	8 A	44.5	56	4.0	s	127	11				
14	39	2 P	35	8 A	37.0	83	0.0	nw	92	20	3 A	8 P	1.03	T
15	34	12 P	29	10 A	31.5	63	0.0	w	275	30			T	T
16	37	2 P	24	7 A	30.5	56	5.0	n	189	20			T	
17	36	3 P	18	8 A	27.0	35	10.0	n	309	23				
18	40	2 P	16	7 A	28.0	45	7.0	w	85	6				
19	51	3 P	22	8 A	36.5	65	8.0	w	47	5				
20	46	2 P	25	6 A	35.5	70	1.0	w	32	5				
21	44	12 P	34	7 A	39.0	86	0.0	nw	58	23	4 A	5 P	0.07	
22	50	11 A	33	12 P	41.5	82	0.0	e	374	48	3 A	1 P	0.56	T
23	42	4 P	28	7 A	35.0	57	3.5	w	231	22				
24	40	4 P	28	8 A	34.0	78	3.5	nw	74	8	6 A	8 A	0.02	0.50
25	40	2 P	23	7 A	31.5	77	1.0	w	59	12			T	T
26	35	1 P	25	4 A	30.0	60	1.0	nw	279	24				
27	34	2 P	20	12 P	27.0	43	11.1	nw	312	25				
28	36	4 P	14	7 A	25.0	49	11.2	nw	174	12				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

P. C. STONE, *Observer*

MONTHLY SUMMARY

February, 1937	Normal	Extremes
Barometer (Readings reduced to sea level)		
Maximum 30.39, 20th	30.63	31.05, 1920
Minimum 29.25, 14th, 15th	29.20	28.56, 1895
Mean semi-daily 29.970	30.03	
Range 1.14	1.43	1.89, 1900, 1908; 88, 1913, 1931
Air Temperature		
Highest 55, 13th	50.3	65.0, 1930
Lowest 6, 4th	-7.9	-22.5, 1918
Mean 30.0	23.5	
Monthly range 49	58.2	
Highest mean daily 44.5, 13th		
Lowest mean daily 15, 2nd		
Mean maximum 37.5		
Mean minimum 22.4		
Greatest daily range 29, 12th, 19th		
Least daily range 4, 14th		
Precipitation		
Precipitation. In inches 2.23	3.35	8.12, 1900; 0.62, 1901
Snow, in inches 0.50	14.27	48.75, 1893; 2.5, 1912
Maximum precipitation in 24 hrs. 1.03, 14th		
Number of days on which .01 or more inches of precipitation fell 6	10	15, 1893, 1920; 4, 1901
Wind (miles)		
Total movement 4,745	4,833	6,445, 1896; 3,438, 1892
Greatest daily movement 374, 22nd		
Least daily movement 29, 9th		
Mean hourly velocity 7.1	7.1	
Maximum velocity, 5 min., 48, 22nd	29	45, 1933
Wind (direction)		
Prevailing direction wnw	wnw	
North, days 2		
Northeast, days 0		
East, days 1		
Southeast, days 2		
South, days 2		
Southwest, days 0		
West, days 7		
Northwest, days 14		
Weather		
Mean relative humidity, per cent 64.0	67.8	
Mean cloudiness, per cent 44.0	50.5	66, 1890, 1927; 31, 1905
Number of clear days 10	10	17, 1924; 2, 1927
Number of fair days 8	8	16, 1920; 2, 1936
Number of cloudy days 10	10	16, 1894; 2, 1920
Number of hours bright sunshine 138	160	221, 1924; 110, 1927
Percent of possible hours of bright sunshine 46.6	54.1	

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1936 The third column gives extremes observed from 1889 to 1936.

REMARKS

The outstanding features of the weather for February were the unusually high temperature and the lack of snowfall.

The mean temperature for the month was 30.0 degrees, while the normal is 23.5 degrees. This is the highest mean for February since 1889 except that in 1890 the mean temperature was 32.6 degrees and in 1925 it was 32.1 degrees. The maximum temperature for February was 55 degrees and the minimum only 6 degrees. Up to the present time the thermometer has not reached zero for the winter, the lowest being 5 degrees on November 25 and 28.

The total precipitation was 2.23 inches, the normal for February being 3.35 inches. Only one-half inch of snow fell during the entire month, as against a normal of 14.27 inches. This is the least amount of snow ever recorded at this station for February. The nearest to this record was 2.5 inches in 1912. The snowfall this winter totals 16 inches as compared to a normal of 38.30 inches for this period.

An interesting feature of the weather was the extremely high wind velocity on the 22nd. A maximum velocity of 48 miles was recorded at 5:30 A. M. which is the highest wind velocity ever recorded at this station. This was equaled only twice, i. e., on February 20, 1934 and March 8, 1932.

There were 138 hours of bright sunshine compared with a normal of 160 hours.

The heating load to date is 4500 degree-days, the normal for this period being 5011 degree-days.

Dr. J. K. Shaw of the Department of Pomology makes the following comments on the fruit crop:

"Remarkably mild weather continued through February, and no serious injury to fruit buds or trees has been observed. We may now feel quite sure of a peach crop in 1937. The lack of snow is not good for strawberry plants, and some crown injury from freezing has been observed."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 579 March, 1937

Meteorological Observations

FOR

MARCH

1937

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	42	4 P	15	7 A	28.5	50	11.2	w	92	14				
2	42	2 P	31	4 A	36.5	62	6.5	w	160	12				
3	40	4 P	27	7 A	33.5	41	11.3	nw	196	15				
4	58	4 P	26	1 A	42.0	71	3.0	s	179	28			T	
5	39	0 A	26	12 P	32.5	61	6.0	nw	224	20				T
6	28	3 P	19	12 P	23.5	76	0.0	w	87	15				T
7	31	4 P	14	6 A	22.5	43	11.5	w	260	22				
8	34	12 P	17	6 A	25.5	71	0.0	sw	54	6	1 P	12 P	0.41	T
9	37	2 P	22	12 P	29.5	53	8.0	nw	204	18				
10	27	4 P	15	7 A	21.0	44	9.5	w	264	20				
11	36	4 P	12	7 A	24.0	54	10.5	s	71	10				
12	40	4 P	15	7 A	27.0	51	11.6	w	92	8				
13	36	2 P	22	12 P	29.0	82	5.0	nw	83	17	5 A	11 A	0.14	1.00
14	34	2 P	14	7 A	24.0	61	6.0	nw	84	12				
15	32	3 P	27	7 A	29.5	92	0.0	n	151	14	7 A	12 P	0.69	5.00
16	36	2 P	30	0 A	33.0	78	5.5	nw	310	25	0 A	8 A	1.17	
17	36	12 P	27	8 A	31.5	69	7.5	w	234	13				T
18	48	3 P	32	5 A	40.0	61	0.0	sw	169	15			T	
19	46	11 A	34	2 A	40.0	59	12.0	w	292	21				
20	42	12 M	31	7 A	36.5	74	5.0	s	83	9	1 P	12 P	0.79	0.50
21	44	2 P	33	4 A	38.5	75	3.0	nw	185	23	0 A	3 A	0.03	
22	40	2 P	29	12 P	34.5	46	12.2	w	332	25				
23	48	1 P	26	6 A	37.0	49	12.2	w	210	27				
24	46	3 P	22	6 A	34.0	51	10.0	sw	103	8	8 P	12 P	0.07	
25	35	0 A	26	6 A	30.5	83	0.0	n	140	19	4 A	6 A	0.08	0.25
26	32	1 P	20	6 A	26.0	55	9.0	nw	342	29				
27	39	2 P	23	2 A	31.0	59	9.5	nw	300	21				
28	33	3 P	23	8 A	28.0	53	11.1	nw	358	27				
29	45	3 P	24	0 A	34.5	55	12.6	nw	356	24				
30	43	3 P	27	5 A	35.0	46	12.7	nw	282	21				
31	52	4 P	20	6 A	36.0	39	12.6	nw	77	7				

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*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

P. C. STONE, *Observer*

MONTHLY SUMMARY

March, 1937		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.37, 3rd	30.60	30.96, 1904
Minimum	29.29, 16th	29.26	28.47, 1914
Mean semi-daily	29.869	30.02	
Range	1.08	1.35	2.10, 1914; 0.85, 1915
Air Temperature			
Highest	58, 4th	63.9	79.5, 1907, 1921
Lowest	12, 11th	5.7	-7.5, 1906
Mean	31.5	34.2	
Monthly range	46	58.2	
Highest mean daily	42.0, 4th		
Lowest mean daily	21.0, 10th		
Mean maximum	39.4		
Mean minimum	23.5		
Greatest daily range	32, 4th, 31st		
Least daily range	5, 15th		
Precipitation			
Precipitation. In inches	3.38	3.68	7.13, 1899; 0.12, 1915
Snow, in inches	6.75	8.11	27, 1899; 0, 1921
Maximum precipitation in 24 hrs.	1.86, 15th, 16th		
Number of days on which .01 or more inches of precipitation fell	8	11	17, 1890, 1913, 1936; 3, 1915
Wind (miles)			
Total movement	5,974	5,738	7,628, 1932; 3,006, 1905
Greatest daily movement	358, 28th		
Least daily movement	54, 8th		
Mean hourly velocity	8.0	7.7	
Maximum velocity, 5 min.,	29, 26th	29	48, 1932
Wind (direction)			
Prevailing direction	wnw	wnw	
North, days	2		
Northeast, days	0		
East, days	0		
Southeast, days	0		
South, days	3		
Southwest, days	3		
West, days	10		
Northwest, days	13		
Weather			
Mean relative humidity, per cent	60.1	63.0	
Mean cloudiness, per cent	46	51.0	68, 1901; 27, 1915
Number of clear days	17	11	22, 1924; 3, 1901
Number of fair days	7	9	17, 1900; 4, 1895, 1936
Number of cloudy days	7	11	21, 1901; 1, 1915
Number of hours bright sunshine	235	201	292, 1924; 93, 1901
Percent of possible hours of bright sunshine	63.3	54.2	

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1936. The third column gives extremes observed from 1889 to 1936.

REMARKS

The weather during March was colder than usual, with a large amount of sunshine, nearly normal precipitation, but less snow than usual. The mean temperature for the month was 31.5 degrees, the normal being 34.2 degrees. The temperature was uniformly low, with no extremely low temperatures. The lowest was 12 degrees on the 11th, while the normal low temperature for March is 5.7 degrees. The highest temperature was 58 degrees on the 4th, the normal maximum for March being 63.9 degrees. The heating load for the month was 1040 degree-days. The total for the season is 5541 degree-days as compared with a normal of 5966 degree-days.

The total precipitation for the month was 3.38 inches, the normal being 3.68 inches. The snowfall for the month was 6.75 inches, while the normal is 8.11 inches. The total snowfall for the winter is 22.75 inches. This is the least snow reported for any winter to the end of March since records were first taken at this station in 1889.

There were 235 hours of bright sunshine, the normal being 201 hours. The total wind movement for the month was 5974 miles, an average of 8 miles per hour. The normal average wind movement for March is 7.7 miles per hour.

Dr. Shaw makes the following statement regarding the fruit crop:

"There was little development of fruit plants during March, owing to rather low temperature. This is favorable as it will tend to check early blooming and consequent danger from spring frosts, such as caused some damage last year."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 580 April, 1937

Meteorological Observations

FOR

APRIL

1937

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	50	2 P	24	5 A	37.0	48	12.7	nw	135	20				
2	38	10 A	31	5 A	34.5	79	0.0	n	70	14	12 M	4 P	0.12	0.50
3	46	4 P	27	5 A	36.5	63	12.0	nw	151	17				
4	50	4 P	30	7 A	40.0	66	9.5	se	89	10				
5	48	3 P	37	6 A	42.5	69	0.5	se	159	12				
6	64	4 P	39	5 A	51.5	78	4.5	se	172	17	2 A	11 A	0.92	
7	50	4 P	32	12 P	41.0	60	10.0	nw	269	21			T	
8	59	12 M	30	4 A	44.5	49	4.0	s	117	11			T	
9	45	0 A	32	12 P	38.5	87	0.0	n	162	15	11 A	9 P	0.21	T
10	44	3 P	33	6 A	38.5	60	3.5	nw	251	18				
11	49	1 P	30	6 A	39.5	61	7.0	nw	194	20				
12	55	4 P	30	6 A	42.5	50	11.0	n	142	19				
13	64	4 P	27	5 A	45.5	49	11.5	s	131	15			T	
14	71	4 P	41	5 A	56.0	56	10.0	w	209	24	3 A	12 P	0.11	
15	62	12 M	43	12 P	52.5	88	0.0	s	138	25	0 A	11 P	0.48	
16	56	4 P	40	12 P	48.0	57	7.5	n	246	22				
17	61	3 P	33	6 A	47.0	37	11.0	se	175	14			T	
18	60	3 A	43	7 A	51.5	74	3.5	se	161	11	6 A	12 P	0.06	
19	67	2 P	45	5 A	56.0	50	13.0	nw	173	20				
20	59	3 P	40	12 P	49.5	48	13.6	nw	263	26				
21	51	3 P	31	4 A	41.0	72	0.0	w	71	9	6 A	10 P	0.28	
22	41	12 M	35	12 P	38.0	84	0.0	n	187	14	0 A	12 P	1.10	
23	47	12 M	35	0 A	41.0	67	1.0	n	300	22	1 A	2 A	0.02	
24	62	2 P	33	6 A	47.5	35	13.7	se	128	12				
25	63	4 P	30	6 A	46.5	48	13.8	w	106	9				
26	61	1 P	29	5 A	45.0	35	13.8	e	213	21				
27	55	1 P	36	6 A	45.5	69	0.0	e	134	13	11 A	8 P	0.40	
28	60	5 P	44	4 A	52.0	83	4.0	n	86	7	0 A	11 P	0.31	
29	56	6 P	41	12 P	48.5	79	2.9	ne	141	21	12 M	1 P	0.02	
30	67	4 P	35	6 A	51.0	46	14.0	ne	115	13				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M

P. C. STONE, *Observer*

MONTHLY SUMMARY

April, 1937		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.53, 4th	30.48	30.71, 1911
Minimum	29.49, 15th	29.41	28.99, 1907, 1929
Mean semi-daily	30.021	29.99	
Range	1.04	1.08	1.52, 1930; 0.72, 1919
Air Temperature			
Highest	71, 14th	79.5	88.5, 1896
Lowest	24, 1st	21.6	8.5, 1923
Mean	45	45.8	
Monthly range	47	57.8	
Highest mean daily	56, 14th, 19th		
Lowest mean daily	34.5, 2nd		
Mean maximum	55.4		
Mean minimum	34.5		
Greatest daily range	37, 13th		
Least daily range	6, 22nd		
Precipitation			
Precipitation. In inches	4.03	3.27	6.89, 1929; 0.76, 1892
Snow, in inches	0.50	2.32	11, 1891; 0, 1910
Maximum precipitation in 24 hrs.	1.10 22nd		
Number of days on which .01 or more inches of precipitation fell	12	11	18, 1909; 3, 1892
Wind (miles)			
Total movement	4,888	5,436	8,208, 1908; 3,853, 1917
Greatest daily movement	300, 23rd		
Least daily movement	70, 2nd		
Mean hourly velocity	6.8	7.5	
Maximum velocity, 5 min.,	26, 20th	29	40, 1935
Wind (direction)			
Prevailing direction	n	wnw	
North, days	7		
Northeast, days	2		
East, days	2		
Southeast, days	6		
South, days	3		
Southwest, days	0		
West, days	3		
Northwest, days	7		
Weather			
Mean relative humidity, per cent	61.6	62.0	
Mean cloudiness, per cent	57	49.2	75, 1901; 34, 1925, 1927
Number of clear days	14	11	19, 1911; 3, 1898, 1902
Number of fair days	4	10	18, 1915; 2, 1894, 1901
Number of cloudy days	12	9	22, 1901; 3, 1899, 1924
Number of hours bright sunshine	208	221	296, 1911; 103, 1901
Percent of possible hours of bright sunshine	51.7	55	
Thunder and lightning	15th, 18th, 28th		
Frosts after 15th	21st, 25th, 26th		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1936 The third column gives extremes observed from 1889 to 1936.

REMARKS

The weather during April was normal in most respects. The mean temperature for the month was 45 degrees which is .8 of a degree lower than the normal. The lowest temperature was 24 degrees on the first. The mean minimum for April is 21.6 degrees. The number of degree-days for April was 601. This makes a total of 6142 degree-days for the season to the end of April. The normal for this period is 6542 degree-days.

It is of interest to note that the temperature did not drop to zero during the past winter. This has happened only once previously since 1837. In the winter of 1931-32 there was no zero weather, the minimum being 3 above in February. This winter the minimum was 5 above in November. The mean temperature for the past winter, however, was not as high as in 1931-32.

The total precipitation for the month was 4.03 inches, the normal for April being 3.27 inches. The total precipitation since the first of January is now 15.02 inches, the normal being 13.72 inches. Half an inch of snow fell during the month, while the average snowfall in April is 2.32 inches. The total snowfall for the winter is 23.25 inches which is the least ever recorded at this station since records were first taken in 1889. The nearest approach to this low record was 25 inches in 1912-13. The normal annual snowfall is 48.38 inches. It may be of interest to recall that in 1892-93 there was a total snowfall of 81.75 inches.

There were 208 hours of bright sunshine, while the normal for April is 221 hours.

Dr. Shaw of the Pomology Department gives the following comments on the fruit crop: "Continued cold weather during April has retarded the development of fruit plants but a few warm days will bring trees into bloom. Considerable winter injury of blueberry plants and strawberry crowns has appeared, but tree fruits show no injury. Prospects are for a heavy bloom of peaches and other tree fruits."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 581 May, 1937

Meteorological Observations

FOR

MAY

1937

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	74	4 P	44	6 A	59.0	45	13.0	ne	148	18				
2	72	1 P	40	5 A	56.0	40	14.1	ne	188	25				
3	82	4 P	36	6 A	59.0	46	9.5	nw	61	6				
4	82	2 P	44	5 A	63.0	45	14.1	n	89	13				
5	77	12 M	48	6 A	62.5	56	9.5	se	115	22				
6	72	3 P	56	5 A	64.0	85	2.0	se	127	13	4-30 P	7 P	.09	
7	70	3 P	49	12 P	59.5	82	6.5	n	112	18	9 A	9 P	.17	
8	57	2 P	46	6 A	51.5	80	0.0	e	71	9			T	
9	75	4 P	47	5 A	61.0	64	6.5	s	62	12	9 P	12 P	.06	
10	58	2 P	41	11 P	49.5	63	8.0	nw	191	22	0 A	1 A	.05	
11	70	5 P	37	5 A	53.5	53	14.0	nw	129	21				
12	77	2 P	37	5 A	57.0	43	12.0	s	140	14				
13	64	2 P	55	4 A	59.5	89	0.0	s	126	11	2 P	12 P	.54	
14	59	1 A	46	12 P	52.5	88	0.0	n	95	13	0 A	12 P	1.66	
15	58	2 P	42	4 A	50.0	77	2.0	w	178	14	0 A	10 A	1.03	
16	71	3 P	35	5 A	53.0	57	12.0	se	68	9				
17	68	1 P	46	4 A	57.0	77	3.0	se	119	13	5 A	8 P	.28	
18	62	5 P	46	5 A	54.0	72	3.5	nw	144	18				
19	54	12 M	44	2 A	49.0	89	0.0	nw	51	8	3 A	5P	.30	
20	59	6 P	42	1 A	50.5	70	2.0	w	174	21	1 A	8 A	.15	
21	70	5 P	42	5 A	56.0	49	14.0	w	111	15				
22	77	5 P	49	5 A	63.0	76	5.0	sw	62	8			T	
23	83	2 P	54	5 A	68.5	71	6.5	nw	75	16	3 P	4 P	.09	
24	72	2 P	47	5 A	59.5	65	9.5	nw	127	18				
25	78	5 P	47	5 A	62.5	53	14.9	n	95	10				
26	78	3 P	46	5 A	62.0	72	4.0	s	58	9	9 P	12 P	1.22	
27	75	4 P	57	8 A	66.0	83	6.0	n	89	8	2 A	12 P	.45	
28	73	1 P	61	12 P	67.0	70	4.0	nw	111	12				
29	82	4 P	57	5 A	69.5	61	15.1	nw	96	11				
30	86	3 P	52	5 A	69.0	61	15.2	w	68	9				
31	92	3 P	55	5 A	73.5	58	15.1	sw	102	9				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M

P. C. STONE, *Observer*

MONTHLY SUMMARY

May, 1937		Normal	Extremes
Barometer			
(Readings reduced to sea level)			
Maximum	30.36, 1st	30.38	30.55, 1895
Minimum	29.66, 15th	29.51	29.16, 1893
Mean semi-daily	29.952	29.95	
Range	0.70	.88	1.21, 1929; 0.60, 1899
Air Temperature			
Highest	92, 31st	85.5	94.5, 1911
Lowest	35, 16th	30.8	24.0, 1900
Mean	59.3	56.8	
Monthly range	57	54.6	
Highest mean daily	73.5, 31st		
Lowest mean daily	49.0, 19th		
Mean maximum	71.8		
Mean minimum	46.7		
Greatest daily range	46, 3rd		
Least daily range	9, 13th		
Precipitation			
Precipitation. In inches	6.09	3.63	7.44, 1931; 0.48, 1903
Snow, in inches			
Maximum precipitation in 24 hrs.	1.66 14th		
Number of days on which .01 or more inches of precipitation fell	13	12	20, 1901; 5, 1903
Wind (miles)			
Total movement	3,382	4,540	5,946, 1907; 2,180, 1894
Greatest daily movement	191, 10th		
Least daily movement	51, 19th		
Mean hourly velocity	4.5	6.1	
Maximum velocity, 5 min.,	25, 2nd	25	45, 1935
Wind (direction)			
Prevailing direction	nw	w	
North, days	5		
Northeast, days	2		
East, days	1		
Southeast, days	4		
South, days	4		
Southwest, days	2		
West, days	4		
Northwest, days	9		
Weather			
Mean relative humidity, per cent	65.8	59.9	
Mean cloudiness, per cent	59	51.5	70, 1901; 30, 1923
Number of clear days	11	10	20, 1923; 0, 1927
Number of fair days	9	11	17, 1907, 1926; 5, 1923
Number of cloudy days	11	10	20, 1927; 3, 1903, 1922
Number of hours bright sunshine	241	250.1	334, 1922; 137, 1927
Percent of possible hours of bright sunshine	53.2	55.2	
Thunder and lightning	14th, 26th		
Frosts	none		
Last Frosts		12th	June 8, 1932; Apr. 23, 1904

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1936 The third column gives extremes observed from 1889 to 1936.

REMARKS

The total rainfall for the month was 6.09 inches. This is well above the normal of 3.63 inches and has been exceeded only four times since 1889. The total precipitation since January 1 is now 21.11 inches, the normal for this period being 17.35 inches.

The weather during May was a good deal warmer than usual and there was considerably more rain than normal. The mean temperature for the month was 59.3 degrees, the normal for May being 56.8 degrees. The highest temperature was 92 degrees on the 31st. The total number of degree-days for the past heating season to the end of May is 6320. The normal for this period is 6808 degree-days.

There were 241 hours of bright sunshine as compared to a normal of 250.1 hours. There was less wind movement than usual with a total wind travel of 3382 miles. The normal for May is 4540 miles. There were no frosts during the month, while our normal date for last frost is May 12.

Dr. J. K. Shaw of the Pomology Department gives the following report in regard to the fruit crop: "Fruit trees bloomed a few days later than the average and the blooming period was longer than last year. Bloom in apple orchards was generally quite heavy but somewhat "spotty", especially among Baldwin and Granvenstein trees which have evidently not fully recovered from recent cold winters. No injury from frost has been reported. Weather during bloom was generally cool and cloudy, and so not especially favoring a heavy set of fruit. It is too early to tell how good it will be."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 582 June, 1937

Meteorological Observations

FOR

JUNE

1937

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	92	2 P	63	5 A	77.5	64	8.5	sw	114	13			T	
2	78	3 P	61	12 P	69.5	64	4.8	nw	110	13				
3	73	1 P	56	5 A	64.5	74	1.5	se	87	10	1 P	12 P	1.27	
4	75	3 P	54	4 A	64.5	62	9.0	w	108	15				
5	80	4 P	51	5 A	65.5	58	11.5	n	59	7				
6	83	3 P	55	2 A	69.0	74	10.0	s	58	6	6 P	9 P	0.21	
7	84	1 P	63	12 P	73.5	70	4.7	n	91	22			T	
8	73	6 P	56	12 P	64.5	81	0.5	n	59	6	8 A	1 P	0.03	
9	83	4 P	51	5 A	67.0	71	7.7	sw	78	10	5-30 P	6-30 P	0.13	
10	76	1 P	58	12 P	67.0	79	0.3	s	198	18	10 A	3 P	0.39	
11	76	6 P	55	6 A	65.5	65	4.2	n	149	11				
12	78	2 P	50	6 A	64.0	49	11.4	w	82	15				
13	81	4 P	50	5 A	65.5	53	10.6	w	107	12				
14	74	3 P	60	6 A	67.0	87	0.5	s	119	10	2 A	5 P	0.56	
15	79	4 P	57	12 P	68.0	73	9.5	n	119	14	1 P	2 P	0.11	
16	80	3 P	49	5 A	64.5	58	11.0	s	76	7				
17	81	1 P	50	5 A	65.5	67	10.5	se	116	12	10 P	12 P	0.35	
18	81	2 P	56	1 A	68.5	88	2.1	se	115	11	0 A	10 P	0.26	
19	68	4 P	61	7 A	64.5	81	0.0	e	89	8	1 A	12 M	0.02	
20	77	4 P	59	5 A	68.0	75	9.6	s	95	8				
21	70	2 P	60	3 A	65.0	91	0.0	se	125	10	9.30 A	11 P	1.54	
22	73	1 P	59	5 A	66.0	76	1.0	n	173	22	2-30 A	3-30 A	0.05	
23	80	3 P	57	5 A	68.5	53	9.5	n	119	13				
24	83	5 P	53	4 A	68.0	58	11.0	nw	70	12				
25	85	6 P	52	6 A	68.5	57	10.2	n	84	13				
26	70	11 A	60	5 A	65.0	71	0.5	n	58	10	3 P	5 P	0.14	
27	69	6 P	55	6 A	62.0	75	0.5	e	68	4				
28	65	3 P	61	8 A	63.0	92	0.0	w	64	7	9-30 A	1-30 P	0.18	
29	78	5 P	59	12 P	68.5	80	2.5	w	53	18	5 P	6 P	0.45	
30	80	4 P	55	5 A	67.5	73	5.0	se	53	8	11-30 P	12 P	0.03	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

J. F. HANSON, *Observer*

MONTHLY SUMMARY

June, 1937		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.32, 17th	30.31	30.54, 1889
Minimum	29.48, 21st, 22nd	29.56	29.24, 1902
Mean semi-daily	29.909	29.961	
Range	0.84	.75	1.27, 1902; 0.52, 1916
Air Temperature			
Highest	92, 1st	91.1	101.0, 1919
Lowest	49, 16th	40.0	34.0, 1891
Mean	66.9	65.4	
Monthly range	43	51.2	
Highest mean daily	77.5, 1st		
Lowest mean daily	62.0, 27th		
Mean maximum	77.5		
Mean minimum	56.2		
Greatest daily range	33, 25th		
Least daily range	4, 28th		
Precipitation			
Precipitation. In inches	5.72	3.54	9.68, 1922; 0.76, 1908
Snow, in inches			
Maximum precipitation in 24 hrs.	1.54 21st		
Number of days on which .01 or more inches of precipitation fell	16	10	17, 1922; 4, 1908
Wind (miles)			
Total movement	2,896	3,584	4,571, 1908; 1,409, 1906
Greatest daily movement	198, 10th		
Least daily movement	53, 29th, 30th		
Mean hourly velocity	4.0	5.0	
Maximum velocity, 5 min.,	22, 7th, 22nd	23	40, 1932
Wind (direction)			
Prevailing direction	w	wsw	
North, days	9		
Northeast, days	0		
East, days	2		
Southeast, days	5		
South, days	5		
Southwest, days	2		
West, days	5		
Northwest, days	2		
Weather			
Mean relative humidity, per cent	70.6	66.5	
Mean cloudiness, per cent	66	50.1	71, 1903; 28, 1908
Number of clear days	4	9	22, 1908; 1, 1907, 1926
Number of fair days	11	13	23, 1912; 4, 1895, 1903
Number of cloudy days	15	8	22, 1903; 1, 1923
Number of hours bright sunshine	169	257.4	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	37	56.2	
Thunder and lightning	3rd, 6th, 14th, 19th, 29th, 30th		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1936. The third column gives extremes observed from 1889 to 1936.

REMARKS

The outstanding features of the June weather were an excessive amount of rain and lack of sunshine. The total precipitation during the month was 5.72 inches, the normal being 3.54 inches. This is the greatest amount of rain for June since 1928 when 6.97 inches fell and in 1922 when 9.68 inches fell. Rain in excess of .01 inch fell on 16 days, the normal number of days of rain in June being 10. Traces of rain fell on two additional days. The total precipitation since January 1 is now 26.83 inches, the normal for this period being 20.89 inches. There were only 169 hours of bright sunshine as compared to a normal of 257.4 hours.

The mean temperature for the month was 66.9 degrees, the normal being 65.4 degrees. The highest temperature for the month was 92 degrees on the first; the lowest was 49 degrees on the 16th There was less wind than normal, with a total wind travel of 2896 miles compared to a normal of 3584 miles.

Dr. J. K. Shaw reports as follows on the effect of the weather on the fruit crop: "The excessive precipitation and the high humidity which prevailed during the month have resulted in much apple scab on susceptible varieties and brown rot in cherries which are ripening as the month closes. Weather during bloom was not very favorable for blossom fertilization and the set of McIntosh was only fair. The plentiful water supply has favored vigorous growth but is likely to cause root killing in orchards located in poorly drained soils. The strawberry crop has been good but with some loss from rot. The flavor of fruits thus far harvested seems a little inferior, a common result of so much cloudy, rainy weather."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 583 July, 1937

Meteorological Observations
FOR
JULY
1937

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	74	3 P	55	12 P	64.5	61	6.4	w	124	13	0 A	6-30 A	1.01	
2	73	2 P	50	5 A	61.5	62	9.4	s	75	7				
3	74	12 M	57	12 P	65.5	75	5.2	se	69	6			T	
4	83	4 P	53	2 A	68.0	68	12.8	nw	6[illegible]	10				
5	85	1 P	57	5 A	71.0	63	13.0	s	75	13				
6	89	1 P	57	4 A	73.0	69	11.3	nw	70	9			T	
7	90	4 P	60	5 A	75.0	64	15.1	nw	64	12				
8	96	3 P	62	5 A	79.0	61	15.1	nw	97	13				
9	95	2 P	67	4 A	81.0	69	12.3	nw	58	6				
10	93	4 P	70	5 A	81.5	66	15.0	nw	59	7				
11	90	1 P	68	12 P	79.0	72	11.0	se	76	9	6-30 P	9-30 P	0.95	
12	69	11 A	64	12 P	66.5	87	0.0	ne	55	4	6 A	8 P	0.12	
13	80	3 P	58	12 P	69.0	66	11.1	ne	107	14				
14	78	3 P	54	3 A	66.0	67	9.7	se	80	9				
15	69	12 P	62	4 A	65.5	92	0.0	se	116	8	12 M	12 P	0.52	
16	89	4 P	69	0 A	79.0	75	11.2	sw	141	13				
17	88	12 M	67	12 P	77.5	66	8.4	sw	97	25			T	
18	80	12 M	62	5 A	71.0	65	7.8	nw	91	12			T	
19	83	4 P	56	5 A	69.5	62	12.5	nw	85	13				
20	84	3 P	62	12 P	73.0	66	9.6	s	94	9				
21	84	4 P	57	5 A	70.5	65	11.8	w	64	7				
22	85	4 P	52	5 A	68.5	58	14.8	s	41	5				
23	88	3 P	60	5 A	74.0	66	13.3	se	50	7				
24	89	1 P	62	5 A	75.5	71	13.9	se	97	11			T	
25	89	3 P	64	5 A	76.5	68	13.7	se	112	10				
26	86	1 P	68	12 P	77.0	79	6.9	se	206	18	5 A	9 P	0.28	
27	78	4 P	58	12 P	68.0	65	8.1	s	139	12				
28	72	5 P	54	3 A	63.0	68	5.0	nw	70	9				
29	85	3 P	53	3 A	69.0	67	12.5	se	67	8				
30	82	2 P	61	5 A	71.5	66	11.0	s	130	17			T	
31	83	4 P	59	5 A	71.0	67	11.1	nw	50	7				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

J. F. HANSON, *Observer*

MONTHLY SUMMARY

July, 1937		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.18, 29th	30.28	30.59, 1892
Minimum	29.57, 16th	29.60	29.27, 1932
Mean semi-daily	29.963	29.972	
Range	0.61	.68	0.97, 1892; 0.51, 1895, 1859
Air Temperature			
Highest	96, 8th	93.9	104.0, 1911
Lowest	50, 2nd	45.5	40.0, 1890, 1898
Mean	71.6	70.6	
Monthly range	46	48.4	
Highest mean daily	81.5, 10th		
Lowest mean daily	61.5, 2nd		
Mean maximum	83.3		
Mean minimum	59.9		
Greatest daily range	34, 8th		
Least daily range	5, 12th		
Precipitation			
Precipitation. In inches	2.88	4.33	14.51, 1897; 0.70, 1929
Snow, in inches			
Maximum precipitation in 24 hrs.	1.01 1st		
Number of days on which .01 or more inches of precipitation fell	5	11	20, 1915; 4, 1924
Wind (miles)			
Total movement	2,725	3,435	5,097, 1909; 1,109, 1894
Greatest daily movement	206, 26th		
Least daily movement	41, 22nd		
Mean hourly velocity	4.0	4.6	
Maximum velocity, 5 min.,	25, 17th	24	44, 1936
Wind (direction)			
Prevailing direction	ssw	sw	
North, days	0		
Northeast, days	2		
East, days	0		
Southeast, days	9		
South, days	6		
Southwest, days	2		
West, days	2		
Northwest, days	10		
Weather			
Mean relative humidity, per cent	68.3	68.0	
Mean cloudiness, per cent	63	50.1	69, 1914; 31, 1924
Number of clear days	19	9	22, 1923; 0, 1915
Number of fair days	10	14	24, '09, '21; 5, '89, '23, '28, '36
Number of cloudy days	2	8	18, 1889; 0, 1910
Number of hours bright sunshine	319	267.0	371, 1910; 182, 1889
Percent of possible hours of bright sunshine	69	57.8	
Thunder and lightning	1st, 11th, 24th, 26th		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1936 The third column gives extremes observed from 1889 to 1936

REMARKS

July was marked by a very unusual hot spell from the 7th to the 11th, when the daily maximum temperature for a 5-day period did not fall below 90 degrees, with a temperature of 96 on the 8th. These high temperatures, together with high humidity and many hours of bright sunshine, made the period a most uncomfortable one. Not since 1919 have we experienced such a prolonged spell of hot weather, when another 5-day period of maximum temperatures ranging from 94.5 to 98 degrees was recorded. The all-time record for prolonged excessive heat at this station was in 1911 when the daily temperature for a 7-day period did not fall below 90 degrees, the highest temperatures being 104, 102.5 and 101.5 degrees. Other excessive warm spells were recorded in 1892, 1901 and 1912.

The mean temperature for the month was 71.6 degrees, the normal for July being 70.6 degrees. The maximum temperature was 96 degrees on the 8th, and the minimum, 50 degrees on the 2nd. The rainfall for July was 2.88 inches compared with a normal of 4.33 inches. The total precipitation since January 1 is now 29.71 inches, with a normal of 25.22 inches for this period. There were 319 hours of bright sunshine, the normal being 267 hours. Nineteen days classified as "clear", ten as "fair", and only two as "cloudy." The relative humidity for the month of July was 68.3 per cent, the normal being 68 per cent. The total wind movement was 2725 milse compared with a normal of 3435 miles. This is the lowest wind movement recorded for July since 1921, when it was 2421 miles.

The Pomology Department gives the following report on the fruit crop:

"The abundant and well distributed rainfall previous to August 1 has resulted in the development of excellent foliage in the average orchard and a rapid sizing of fruit. The moisture situation is very different from that in 1936 when actual drought conditions existed in many orchards. If rainfall during August is normal, we anticipate favorable conditions from the standpoint of maturing the apple crop. On the other hand, if drought conditions prevail, it is reasonable to expect a premature drop of fruit on certain varieties such as McIntosh and perhaps the development of bitter pit or stippen in Baldwins. Rainfall and humidity during July have favored a secondary infection of apple scab which has necessitated emergency measures in the average orchard."

MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 584 August, 1937

Meteorological Observations

FOR

AUGUST

1937

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	79	12 M	60	3 A	69.5	69	9.0	n	72	11	1 P	9-30 P	.10	
2	82	2 P	56	5 A	69.0	72	9.0	nw	66	11			T	
3	84	3 P	56	5 A	70.0	66	11.0	nw	55	6			T	
4	88	3 P	59	5 A	73.5	64	11.5	s	111	9				
5	88	3 P	68	1 A	78.0	77	6.5	s	137	10				
6	89	1 P	69	3 A	79.0	71	9.5	s	100	11				
7	89	3 P	70	7 A	79.5	74	6.5	sw	69	5				
8	88	12 M	70	12 P	79.0	76	8.2	se	76	14	0 A	3 P	.12	
9	86	1 P	69	2 A	77.5	78	4.5	se	63	11	2 P	3 P	.05	
10	86	3 P	73	7 P	79.5	78	3.5	se	124	11				
11	83	11 A	69	4 P	76.0	83	1.4	s	180	17	11-30 A	11 P	.91	
12	85	3 P	67	2 A	76.0	72	2.5	s	156	12	9 P	10-30 P	.20	
13	83	4 P	64	11 P	73.5	64	11.0	w	126	13				
14	80	4 P	56	6 A	68.0	62	14.0	w	74	8				
15	84	3 P	51	6 A	67.5	72	14.0	sw	56	6				
16	91	4 P	50	5 A	70.5	70	13.5	sw	53	8				
17	91	3 P	65	6 A	78.0	68	13.5	se	120	10				
18	90	2 P	68	12 P	79.0	70	1.0	ne	113	14			T	
19	81	5 P	68	5 A	74.5	81	0.0	s	86	8	9-30 P	11 P	.03	
20	95	4 P	73	4 A	84.0	71	8.0	s	101	10	9 P	10 P	.08	
21	92	1 P	69	12 P	80.5	81	4.9	se	120	18	5 P	8 P	.52	
22	69	0 A	58	12 P	63.5	89	0.0	nw	115	18	4-30 A	10 P	.65	
23	62	2 P	57	8 A	59.5	84	0.0	ne	116	11	3 A	9 A	.23	
24	68	5 P	57	7 A	62.5	80	1.5	s	66	6				
25	83	3 P	53	5 A	68.0	75	9.0	s	57	6				
26	75	4 P	64	6 A	69.5	85	0.5	se	90	6	5-30 P	10 P	.04	
27	72	11 A	64	12 P	68.0	89	1.0	n	104	22	1-30 A	3 P	1.98	
28	87	4 P	58	5 A	72.5	77	13.4	w	80	9				
29	86	3 P	61	6 A	73.5	76	9.5	sw	44	6				
30	83	5 P	65	6 A	74.0	78	8.5	se	72	8				
31	90	4 P	66	12 P	78.0	76	9.6	w	68	8				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M

J. F. HANSON, *Observer*

MONTHLY SUMMARY

August, 1937		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.32, 15th	30.32	30.48, 1918
Minimum	29.75, 12th	29.63	28.87, 1930
Mean semi-daily	30.065	30.00	
Range	.57	.69	1.49, 1930; 0.44, 1894
Air Temperature			
Highest	95, 20th	91.3	100.0, 1918
Lowest	50, 16th	42.9	37.0, 1894, 1908
Mean	73.3	68.4	
Monthly range	45	48.4	
Highest mean daily	84, 20th		
Lowest mean daily	59.5, 23rd		
Mean maximum	83.5		
Mean minimum	63.0		
Greatest daily range	41, 16th		
Least daily range	5, 23rd		
Precipitation			
Precipitation. In inches	4.91	4.24	8.40, 1928; 0.31, 1894
Snow, in inches			
Maximum precipitation in 24 hrs.	1.98 27th		
Number of days on which .01 or more inches of precipitation fell	12	10	16, 1892, 1933; 4, 1889
Wind (miles)			
Total movement	2,870	3,099	4,271, 1910; 1,920, 1894
Greatest daily movement	180, 11th		
Least daily movement	44, 29th		
Mean hourly velocity	3.9	4.2	
Maximum velocity, 5 min.,	22, 27th	21	35, 1915
Wind (direction)			
Prevailing direction	s	sw	
North, days	2		
Northeast, days	2		
East, days	0		
Southeast, days	7		
South, days	9		
Southwest, days	4		
West, days	4		
Northwest, days	3		
Weather			
Mean relative humidity, per cent	75.1	69.6	
Mean cloudiness, per cent	60	49.4	67, 1901; 27, 1923
Number of clear days	10	9	17, 1921, 1936; 0, 1915
Number of fair days	11	13	25, 1912; 5, 1893, 1933, 19[illegible]6
Number of cloudy days	10	9	18, '01, '28; 2, '10, 1923
Number of hours bright sunshine	210	237.0	317, 1921; 152, 1915, 1929
Percent of possible hours of bright sunshine	50	55.2	
Thunder and lightning	4th, 9th, 10th, 11th, 12th, 20th, 21st		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1936. The third column gives extremes observed from 1889 to 1936

REMARKS

The outstanding feature of August weather was the unusually high temperature. The mean temperature for the month was 73.3 degrees. This is the highest mean temperature for August since weather records have been taken at Amherst, beginning in 1837. The nearest approach to this high mean was 72.3 degrees in 1917. The highest temperature was 95 degrees on the 20th and the lowest 50 degrees on the 16th. The mean relative humidity for the month was 75.1 per cent, while the normal is 69.6 per cent. This is the highest relative humidity for August during the last ten years. The mean temperature for June, July and August for the current year is 70.6 degrees, while the mean normal is 68.1 for this period. This is the highest mean temperature for these three months since 1876 when the mean temperature was 71.8 degrees. In 1917 the mean temperature for the three summer months was 70.4. The rainfall for the month was 4.91 inches compared to a normal of 4.24 inches. The rainfall since January 1 is now 34.62 inches, the normal for this period being 29:46 inches. There were 216 hours of bright sunshine, compared to a normal of 237 hours. The total wind travel for the month was 2870 miles, while the normal velocity for August is 3099 miles.

Dr. J. K. Shaw of the Pomology Department comments as follows on the fruit crop: "Wet weather continued through August. There is considerable brown rot on peaches, although the crop is otherwise good. Apples do not seem to be sizing up well and show much russeting due to humidity and heavy spraying to control scab. The blueberry crop was heavy. There is promise of good pear and plum crops."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 585 September, 1937

Meteorological Observations

FOR

SEPTEMBER

1937

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees.	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	87	4 P	59	6 A	73.0	76	10.0	sw	40	5				
2	86	3 P	62	5 A	74.0	83	4.2	s	65	13	6 P	7-30 P	.46	
3	92	3 P	70	12 P	81.0	70	12.8	s	107	17	8 P	9-30 P	.11	
4	89	12 M	68	5 A	78.5	74	7.6	sw	109	13	3-30 P	5 P	.10	
5	69	0 A	52	12 P	60.5	91	0.0	n	152	11	4-30 A	12-30 P	.89	
6	68	5 P	47	4 A	57.5	70	11.2	ne	100	13				
7	75	3 P	44	5 A	59.5	73	9.7	s	50	8				
8	77	2 P	47	6 A	62.0	68	12.9	nw	89	13				
9	74	3 P	44	6 A	59.0	65	12.8	s	76	8				
10	79	3 P	49	6 A	64.0	70	12.8	se	91	8				
11	67	4 P	49	4 A	58.0	90	0.0	nw	97	11	11-30 A	2 P	.04	
12	72	1 P	51	12 P	61.5	68	8.7	w	85	14				
13	61	11 P	51	0 A	56.0	87	0.0	nw	108	20	8 A	11 P	1.12	
14	64	7 A	49	12 P	56.5	67	4.9	sw	152	20	0 A	3 A	.03	
15	74	2 P	43	6 A	58.5	74	11.8	se	152	18				
16	76	2 P	54	12 P	65.0	69	4.5	s	63	6				
17	57	2 P	47	4 A	52.0	89	0.0	sw	41	6	8 A	7 P	.08	
18	66	3 P	38	7 A	52.0	72	10.0	se	78	10				
19	62	4 P	42	4 A	52.0	84	3.5	w	141	20	10 A	12 M	.02	
20	58	4 P	44	12 P	51.0	62	1.5	nw	244	28				
21	67	2 P	38	2 A	52.5	63	12.2	nw	95	13				
22	71	3 P	37	6 A	54.0	69	12.2	nw	50	6				
23	75	3 P	39	6 A	57.0	74	12.1	se	88	10				
24	83	4 P	46	7 A	64.5	82	9.0	se	53	3				
25	81	3 P	55	7 A	68.0	78	7.2	w	41	7				
26	74	11 A	53	12 P	63.5	70	7.9	w	115	20				
27	63	3 P	42	6 A	52.5	61	7.5	n	113	17				
28	52	2 P	46	1 A	49.0	89	0.0	nw	136	13	8 A	7-30 P	.39	
29	66	1 P	46	12 P	56.0	72	5.6	nw	127	10				
30	68	4 P	36	5 A	52.0	75	6.4	sw	50	7				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

J. F. HANSON, *Observer*

MONTHLY SUMMARY

September 1937		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.55, 30th	30.45	30.65, 1924
Minimum	29.52, 11th	29.59	29.32, 1900
Mean semi-daily	30.065	30.068	
Range	1.03	.86	1.20, 1904; 0.57, 1910
Air Temperature			
Highest	92, 3rd	87.4	97.0, 1895, 1929
Lowest	36, 30th	32.8	2.45, 1914
Mean	60.0	61.6	
Monthly range	56	54.6	
Highest mean daily	81, 3rd		
Lowest mean daily	51, 20th		
Mean maximum	71.8		
Mean minimum	48.3		
Greatest daily range	37, 24th		
Least daily range	6, 28th		
Precipitation			
Precipitation. In inches	3.24	3.79	12.34, 1933; 0.52, 1914
Snow, in inches			
Maximum precipitation in 24 hrs.	1.12, 13th		
Number of days on which .01 or more inches of precipitation fell	10	9	15, 1918; 3, 1903
Wind (miles)			
Total movement	2,908	3,252	4,686, 1896; 1,414, 1894
Greatest daily movement	244, 20th		
Least daily movement	40, 1st		
Mean hourly velocity	4.0	4.5	
Maximum velocity, 5 min.,	28, 20th	22	39, 1915, 1934
Wind (direction)			
Prevailing direction	wsw	wsw	
North, days	2		
Northeast, days	1		
East, days	0		
Southeast, days	5		
South, days	5		
Southwest, days	5		
West, days	4		
Northwest, days	8		
Weather			
Mean relative humidity, per cent	74.5	73.6	
Mean cloudiness, per cent	44.5	48.7	70.0, 1934; 27, 1908, 1914
Number of clear days	13	9	19, 1932; 2, 1907, 1928
Number of fair days	10	11	19, 1908; 3, 1889
Number of cloudy days	7	10	20, 1934; 4, '08, '16
Number of hours bright sunshine	219	202.5	255, 1916; 106, 1934
Percent of possible hours of bright sunshine	58.9	54.4	
Thunder and lightning	2nd, 3rd, 4th		
First Frost		19th	Aug. 22, '94, '95; Oct. 13, '09

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1936 The third column gives extremes observed from 1889 to 1936

REMARKS

The weather during September was quite seasonal in all respects, with no unusual conditions. The mean temperature for the month was somewhat lower than usual, being 60.0 degrees, while the normal is 61.6 degrees. The highest temperature was 92 degrees on the 3rd and the lowest, 36 degrees on the 30th. There was light frosts within the town on the 21st and 22nd, but not at the point where our observations are made. The total precipitation for the month was 3.24 inches, the normal for September being 3.79 inches. The total precipitation since January 1 is now 37.86 as compared to a normal of 33.25 inches for that period. There were 219 hours of bright sunshine, the average being 202.5 hours.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 586 October, 1937

Meteorological Observations

FOR

OCTOBER

1937

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.		Mean									
	Degrees	Time.	Degrees	Time.				Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	71	1 P	46	5 A	58.5	64	11.8	se	137	13				
2	65	2 P	48	12 P	56.5	65	4.1	n	141	17				
3	59	2 P	39	7 A	49.0	71	11.7	w	89	6				
4	63	5 P	41	0 A	52.0	77	5.6	se	58	6				
5	74	3 P	53	8 A	63.5	79	5.5	s	110	10	11 P	12 P	.06	
6	76	4 P	65	4 A	70.5	87	4.9	s	181	20	0 A	9-30 A	.30	
7	69	0 A	48	12 P	58.5	54	7.0	nw	213	28				
8	52	2 P	35	12 P	43.5	53	11.0	nw	188	28				
9	54	2 P	26	6 A	40.0	63	9.7	se	55	5				
10	49	3 P	41	7 A	45.0	79	0.0	nw	96	15	5 A	8 A	.03	
11	51	3 P	36	12 P	43.5	68	1.7	nw	155	13			T	
12	66	3 P	31	3 A	48.5	71	10.0	s	142	25	8 P	12 P	.05	
13	52	2 P	39	12 P	45.5	54	9.5	w	178	18	0 A	1 A	.01	
14	51	1 P	24	7 A	37.5	66	7.1	w	78	15				
15	48	2 P	26	7 A	37.0	64	8.5	w	143	22				
16	50	3 P	28	7 A	39.0	54	9.9	nw	120	15				
17	55	3 P	21	6 A	38.0	65	8.0	w	53	6				
18	61	2 P	26	6 A	43.5	76	2.3	s	133	15				
19	67	12 P	56	0 A	61.5	88	0.0	s	203	15	0 A	12 P	.39	
20	70	12 M	45	12 P	57.5	82	0.0	s	305	28	0 A	8 P	1.75	
21	62	3 P	41	6 A	51.5	58	10.9	s	142	13				
22	70	2 P	46	7 A	58.0	85	1.5	s	105	15	6 P	7 P	.02	
23	67	2 P	55	12 P	61.0	85	0.0	se	303	28	6 A	5 P	.48	
24	52	12 M	36	12 P	44.0	60	4.2	sw	159	17				
25	54	3 P	29	7 A	41.5	63	10.2	s	127	11				
26	60	3 P	28	7 A	44.0	76	9.0	se	89	13				
27	63	2 P	39	7 A	51.0	80	7.9	w	69	13				
28	52	2 P	49	11 A	50.5	90	0.0	nw	152	13	4-30 A	2 P	1.24	
29	54	4 P	47	8 P	50.5	74	2.0	w	92	13			T	
30	64	2 P	46	4 A	55.0	53	10.4	nw	326	42				
31	50	1 P	33	12 P	41.5	54	6.6	nw	294	28				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M

J. F. HANSON, *Observer*

MONTHLY SUMMARY

October 1937		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.67, 17th	30.53	30.68, 1929
Minimum	29.34, 23rd	29.42	29.00, 1926
Mean semi-daily	30.051	30.059	
Range	1.33	1.11	1.47, 1926; 0.76, 1899
Air Temperature			
Highest	76, 6th	79.7	90.5, 1908
Lowest	21, 17th	23.4	17, 1936
Mean	49.6	50.4	
Monthly range	55	56.3	
Highest mean daily	70.5, 6th		
Lowest mean daily	37.0, 15th		
Mean maximum	59.7		
Mean minimum	39.5		
Greatest daily range	35, 12th, 18th		
Least daily range	3, 28th		
Precipitation			
Precipitation. In inches	4.33	3.35	8.81, 1911; 0.01, 1924
Snow, in inches			
Maximum precipitation in 24 hrs.	1.83, 19th, 20th		
Number of days on which .01 or more inches of precipitation fell	10	8	15, 1913; 1, 1897, 1924
Wind (miles)			
Total movement	4,636	4,023	5,467, 1910; 2,540, 1894
Greatest daily movement	326, 30th		
Least daily movement	53, 17th		
Mean hourly velocity	6.2	5.4	
Maximum velocity, 5 min.,	42, 30th	27	39, 1934, 1935
Wind (direction)			
Prevailing direction	sw	w	
North, days	1		
Northeast, days	0		
East, days	0		
Southeast, days	5		
South, days	9		
Southwest, days	1		
West, days	7		
Northwest, days	8		
Weather			
Mean relative humidity, per cent.	69.6	69.2	
Mean cloudiness, per cent	52	47.6	67, 1932; 18, 1924
Number of clear days	13	8	16, 1934; 1, 1911
Number of fair days	9	11	17, 1924; 4, 1936
Number of cloudy days	9	12	19, 1896; 3, 1924
Number of hours bright sunshine	191	171.0	232, 1923; 91, 1913
Percent of possible hours of bright sunshine	56	50.1	
Frosts	9th, 14th, 15th, 16th, 17th, 18th, 25th, 26th		
First frost	9th	19th	Aug. 22, '94, '95; Oct. 13, '09

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1936 The third column gives extremes observed from 1889 to 1936

REMARKS

The weather during October was slightly colder than usual with considerably more rain than normal. The mean temperature for the month was 49.6 degrees, the normal being 50.4 degrees. The highest temperature was 76 degrees on the 6th and the lowest, 20 degrees on the 17th. The domestic heating load for October was 478 degree-days, the normal being 453 degree-days. There were 199 degree-days in September, making the total heating load for September and October 677, compared to a normal of 611 degree-days.

The total rainfall during the month was 4.33 inches, which is .98 inch greater than normal. The total rainfall from January 1 to October 31 is 42.19 inches, compared to a normal of 36.60 inches for that period. There were 191 hours of bright sunshine, the normal for October being 171 hours. The total wind for the month was 4636 miles, the normal being 4023 miles. The highest velocity was 42 miles per hour on the 30th.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series **Bulletin No. 587** **November, 1937**

Meteorological Observations

FOR

NOVEMBER

1937

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	51	5 P	23	6 A	37.0	69	10.3	nw	68	8				
2	60	3 P	35	2 A	47.5	72	7.0	s	242	22			T	
3	46	1 P	36	12 P	41.0	52	5.3	nw	191	32				
4	47	4 P	32	12 P	39.5	67	3.1	w	110	15				
5	54	3 P	25	5 A	39.5	69	4.0	s	140	14				
6	50	12 M	32	12 P	41.0	61	6.2	w	221	32				
7	60	3 P	27	5 A	43.5	61	7.6	s	119	11				
8	62	3 P	33	5 A	47.5	82	1.6	se	75	14			T	
9	63	12 M	46	12 P	54.5	56	7.2	w	316	31	4 A	5 A	.04	
10	55	1 P	33	12 P	44.0	56	7.9	nw	241	28				
11	41	4 P	25	12 P	33.0	52	10.0	nw	197	20				
12	40	2 P	18	7 A	29.0	78	3.2	w	32	4				
13	56	3 P	36	0 A	46.0	86	0.0	ne	124	28	0 A	12 P	1.73	
14	57	12 M	42	12 P	49.5	83	1.5	nw	144	14	0 A	4-30 A	.34	
15	51	3 P	35	7 A	43.0	89	1.5	nw	60	10	4 P	7 P	.14	
16	49	2 P	38	4 A	43.5	65	3.2	w	136	18				
17	47	1 P	33	5 A	40.0	79	1.0	w	61	5			T	
18	44	2 P	32	9 P	38.0	57	4.9	nw	215	25				
19	42	12 M	29	7 A	35.5	71	4.5	s	96	12				T
20	33	8 P	32	8 A	32.5	92	0.0	nw	143	15	5 A	8 P	.11	1.50
21	34	4 P	26	12 P	30.0	78	2.6	w	123	18	0 A	11 A	.11	1.50
22	30	2 P	20	12 P	25.0	62	3.1	w	68	22				T
23	42	2 P	14	7 A	28.0	68	9.5	w	59	9				
24	40	2 P	26	0 A	33.0	66	1.5	s	72	6				
25	52	4 P	28	7 A	40.0	60	2.9	se	57	6				
26	48	6 P	26	5 A	37.0	73	1.5	se	41	5			T	
27	54	2 P	35	8 A	44.5	74	2.3	nw	44	2	8 P	12 P	.03	
28	61	8 P	45	3 A	53.0	88	0.0	se	111	20	0 A	11-30 P	2.27	
29	60	0 A	29	12 P	44.5	61	9.3	nw	233	22	12-30 A	1 A	.09	
30	48	3 P	25	7 A	36.5	68	9.3	s	55	7				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M

J. F. HANSON, *Observer*

MONTHLY SUMMARY

November 1937		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.58, 1st	30.58	30.87, 1932
Minimum	29.36, 14th	29.34	28.73, 1904
Mean semi-daily	30.079	30.046	
Range	1.22	1.29	1.84, 1904; 0.94, 1935
Air Temperature			
Highest	63, 9th	65.3	75.0, 1924
Lowest	14, 23rd	13.8	3.5, 1891
Mean	39.9	38.6	
Monthly range	49	51.4	
Highest mean daily	54.5, 9th		
Lowest mean daily	25.0, 22nd		
Mean maximum	49.2		
Mean minimum	30.5		
Greatest daily range	33, 7th		
Least daily range	1, 20th		
Precipitation			
Precipitation. In inches	4.86	3.45	8.64, 1927; 0.63, 1917
Snow, in inches	3.00	2.05	9,24; t, 89, 93, 03, 12, 18, 19 22, 27, 32, 34
Maximum precipitation in 24 hrs.	2.34, 28th, 29th		
Number of days on which .01 or more inches of precipitation fell	9	9	22, 1921; 2, 1904
Wind (miles)			
Total movement	3,794	4,564	5,978, 1906; 2,589, 1889
Greatest daily movement	316, 9th		
Least daily movement	32, 12th		
Mean hourly velocity	5.3	6.3	
Maximum velocity, 5 min.,	32, 3rd, 6th	29	40, 1915
Wind (direction)			
Prevailing direction	w	w	
North, days	0		
Northeast, days	1		
East, days	0		
Southeast, days	4		
South, days	6		
Southwest, days	0		
West, days	9		
Northwest, days	10		
Weather			
Mean relative humidity, per cent	69.8	70.1	
Mean cloudiness, per cent	55.2	53.5	72, 1900, '27; 34, 1917
Number of clear days	7	6	15, '03; 1, '00 '11 '27
Number of fair days	11	9	16, '12; 4, '89,30, 32, '35
Number of cloudy days	12	15	24, '27; 9, '90, '05, '17
Number of hours bright sunshine	132	121.0	182, 1903; 66, 1927
Percent of possible hours of bright sunshine	45.1	41.3	
Thunder and lightning	15th		
First snow	19th	Nov.	Oct. 10, '25, Nov. 27, '31

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1936 The third column gives extremes observed from 1889 to 1936

REMARKS

November weather was nearly normal with the exception of a heavier rainfall than usual. The mean temperature for the month was 39.9 degrees compared with a normal of 38.6 degrees. The highest temperature was 63 degrees on the 9th and the lowest, 14 degrees on the 23rd. Last year the lowest temperature for November was 5 degrees, the lowest on record for this month being 3.5 degrees in 1891. The total precipitation during the month was 4.86 inches, while the nomal is 3.45 inches. Most of the rainfall occurred in two storms, 2.07 inches being recorded on the 13th and 14th, and 2.39 inches on the 28th and 29th. The total precipitation since January 1 is now 47.05 inches, compared with a normal of 40.05 inches for this period. The total snowfall for November was 3.00 inches, which fell on the 20th and 21st. The first snow this year fell on the 19th, the normal date being November 5. The total sunshine was 132 hours, while the normal is 121 hours. The humidity for the month was normal, the mean being 69.8 per cent as compared to a normal of 70.4 per cent. The total wind movement was 3794 miles, while the normal is 4564 miles.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 588 December, 1937

Meteorological Observations

FOR

DECEMBER

1937

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	42	2 P	25	7 A	33.5	60	9.3	w	65	7				
2	35	3 P	20	7 A	27.5	63	7.2	n	124	18				
3	37	3 P	21	8 A	29.0	52	9.3	n	241	15				
4	41	3 P	19	7 A	30.0	60	9.2	nw	79	11				
5	41	2 P	24	8 A	32.5	64	4.5	sw	46	3				
6	39	2 P	25	0 A	32.0	78	0.0	n	73	18	2 P	12 P	.58	T
7	37	0 A	28	12 P	32.5	70	0.0	sw	210	17	0 A	5-30 A	.23	T
8	32	2 P	21	7 A	26.5	55	3.2	s	217	14				
9	35	2 P	21	12 P	28.0	50	7.8	sw	133	9				T
10	32	3 P	14	7 A	23.0	59	9.1	s	114	8				
11	30	2 P	10	8 A	20.0	66	5.7	nw	46	9				
12	27	2 P	9	8 A	18.0	75	5.3	nw	78	17				
13	22	1 P	12	0 A	17.0	56	9.1	nw	229	28				
14	29	3 P	13	7 A	21.0	55	9.1	nw	216	22				
15	39	2 P	17	4 A	28.0	61	4.0	nw	126	20				
16	38	5 P	26	0 A	32.0	84	0.0	se	103	14	3 A	8 A	.24	.75
17	37	3 P	25	2 A	31.0	91	0.0	se	55	6	5 A	12 P	.09	
18	38	11 P	33	2 A	35.5	92	0.0	nw	64	14	0 A	2 P	.69	
19	42	1 P	29	6 A	35.5	68	3.8	nw	151	15				
20	34	6 A	25	12 P	29.5	54	6.0	w	162	18				
21	27	3 P	21	8 A	24.0	59	5.6	nw	97	12				T
22	48	2 P	24	0 A	36.0	60	1.5	se	140	13				
23	41	3 A	20	12 P	30.5	52	9.0	nw	250	39				
24	29	12 P	16	5 A	22.5	74	1.0	nw	72	9	6 P	12 P	.21	.50
25	41	3 P	29	0 A	35.0	85	1.0	nw	72	10	0 A	2 A	.05	.25
26	40	3 P	31	6 A	35.5	51	4.0	w	144	22				
27	35	3 P	20	12 P	27.5	52	7.3	nw	209	25				T
28	25	3 P	19	8 A	22.0	91	0.0	nw	60	6	6 A	2 P	.32	3.00
29	33	2 P	18	8 A	25.5	51	8.8	w	66	13				
30	27	12 M	14	12 P	20.5	59	0.6	nw	69	7				
31	25	2 P	6	5 A	15.5	70	4.6	n	82	12	10 P	12 P	.03	.50

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M

J. F. HANSON, *Observer*

MONTHLY SUMMARY

December 1937		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.58, 27th	30.65	30.96, 1889
Minimum	29.16, 7th	29.25	28.85, 1915
Mean semi-daily	30.098	30.056	
Range	1.42	1.40	1.78, 1895; 1.01, 1892
Air Temperature			
Highest	48, 22nd	54.5	65.5, 1908
Lowest	6, 31st	-2.3	-22.5, 1917
Mean	27.6	27.3	
Monthly range	42	56.8	
Highest mean daily	35.5, 18th, 19th, 26th		
Lowest mean daily	15.5, 31st		
Mean maximum	34.8		
Mean minimum	20.5		
Greatest daily range	24, 22nd		
Least daily range	5, 18th		
Precipitation			
Precipitation. In inches	2.44	3.47	7.77, 1901; 0.87, 1896
Snow, in inches	5.00	8.99	26.50, '02; t, 1891
Maximum precipitation in 24 hrs.	.81, 6th, 7th		
Number of days on which .01 or more inches of precipitation fell	9	9	17, 1902; 4, 1892
Wind (miles)			
Total movement	3,793	4,726	6,694, 1925; 3,239, 1918
Greatest daily movement	250, 23rd		
Least daily movement	46, 5th, 11th		
Mean hourly velocity	5.1	6.4	
Maximum velocity, 5 min.,	39, 23rd	29	45, 1934
Wind (direction)			
Prevailing direction	nw	w	
North, days	4		
Northeast, days	0		
East, days	0		
Southeast, days	3		
South, days	2		
Southwest, days	3		
West, days	4		
Northwest, days	15		
Weather			
Mean relative humidity, per cent	65.1	69.4	
Mean cloudiness, per cent	54.0	53.4	71, 1929; 39, 1919
Number of clear days	11	8	15, 1890; 2, 1922, 1933
Number of fair days	10	10	16, '09; 4, '89, '30, '31, '36
Number of cloudy days	10	13	19, '11, '22; 7, '09, '23
Number of hours bright sunshine	146	130.7	172, 1896; 63.1, 1933
Percent of possible hours of bright sunshine	51.6	46.0	
Thunder and lightning			
First snow	Nov. 19th	Nov. 5	Oct. 10, '25; Nov. 27, '31

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1936. The third column gives extremes observed from 1889 to 1936

ANNUAL SUMMARY

Annual, 1937		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.85, Jan. 28	30.81	31.05, 1920
Minimum	29.16, Dec. 7	28.95	28.47, 1914
Mean semi-daily	30.023	30.016	
Range	1.69	1.86	2.33, 1913; 1.38, 1933
Air Temperature			
Highest	96, July 8	95.8	104, 1911
Lowest	6, Feb. 4, Dec. 31	-12.1	-26.0, 1904
Mean	49.0	47.2	49.6, 1913; 44.0, 1904
Annual range	90	108.0	
Highest mean daily	84, Aug. 20		
Lowest mean daily	15, Feb. 2		
Mean maximum	58.7	57.8	
Mean minimum	39.2	36.5	
Greatest daily range	46, May 3		
Least daily range	1, Nov. 20		
Precipitation			
Precipitation. In inches	49.49	43.49	57.05, 1897; 30.68, 1908
Snow, in inches	25.[illegible]0	48.38	78.00, 1920; 24.50, 1919
Maximum precipitation in 24 hrs.	2 34, Nov. 28, 29		
Number of days on which .01 or more inches of precipitation fell	125	123	144, 1902; 96, 1924
Wind (miles)			
Total movement	46,950	52,321	63,571, 1908; 36,257, 1894
Greatest daily movement	374, Feb. 22		
Least daily movement	23, Jan, 8		
Mean hourly velocity	5.4	6.0	
Maximum velocity, 5 min.,	48, Feb. 22	35	48, 1932, 1934
Wind (direction)			
Prevailing direction	wnw	w	
North, days	39		
Northeast, days	10		
East, days	6		
Southeast, days	55		
South, days	56		
Southwest, days	23		
West, days	65		
Northwest, days	111		
Weather			
Mean relative humidity, per cent	68.2	67.6	
Mean cloudiness, per cent	55.2	50.8	60, '98, '01, '02; 41, '08, '24
Number of clear days	139	109	169, 1932; 59, 1927
Number of fair days	105	128	182, 1912; 83, 1894
Number of cloudy days	121	128	179, '01, '02; 71, 1910
Number of hours bright sunshine	2326	2,356	2,838, 1924; 1,864, 1902
Percent of possible hours of bright sunshine	52	53.0	
Last frost	April 26	M'y 12	Apr. 23, 1904; June 8, 1932
First frost	Oct. 9	S't 19	Aug. 22, '94, '95; Oct. 13, '09
Last snow	April 9	Apr 14	Mar. 14, '10; May 5. '91 '17
First snow	Nov. 19	Nov. 5	Oct. 10, '25; Nov. 27, '31

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1936 The third column gives extremes observed from 1889 to 1936

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 589 January, 1938

Meteorological Observations

FOR

JANUARY

1938

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	23	12 P	11	4 A	17.0	89	0.0	nw	205	15	0 A	12 P	1.48	7.00
2	40	2 P	23	0 A	31.5	77	3.3	nw	137	15	0 A	10-30 A	.57	
3	34	4 P	13	12 P	23.5	61	7.2	w	128	20				
4	25	4 P	2	6 A	13.5	85	0.2	nw	33	4				
5	40	3 P	10	2 A	25.0	77	6.2	w	80	15				
6	33	4 P	9	7 A	21.0	81	6.5	w	47	6				
7	40	4 P	26	0 A	33.0	92	1.0	nw	70	12	0 A	10 A	1.31	
8	32	2 P	21	11 P	26.5	55	7.5	nw	171	13				
9	27	3 P	13	12 P	20.0	50	8.1	w	108	18				
10	25	2 P	10	6 A	17.5	68	0.0	s	47	5				
11	20	4 P	3	7 A	11.5	79	2.2	nw	39	6				
12	19	8 P	3	3 A	11.0	74	0.0	nw	48	6	7-30 P	12 P	.14	1.00
13	32	4 P	19	0 A	25.5	72	1.6	n	105	12	0 A	10-30 A	.27	3.00
14	34	1 P	10	7 A	22.0	61	5.3	nw	102	13				
15	22	3 P	5	12 P	13.5	58	6.7	nw	166	14				
16	24	11 P	-3	9 A	10.5	68	6.1	nw	43	5				
17	24	3 P	15	12 P	19.5	83	0.0	nw	136	15	2 A	8 P	.32	5.00
18	10	4 P	-4	12 P	3.0	47	6.3	nw	224	20				
19	20	2 P	-12	8 A	4.0	61	8.9	nw	55	5				
20	31	2 P	4	8 A	17.5	66	6.3	nw	26	4				
21	29	4 P	2	6 A	15.5	77	0.1	nw	33	3	6 P	12 P	.07	1.00
22	31	4 P	25	0 A	28.0	86	0.0	nw	54	6	0 A	12 P	.07	1.00
23	43	4 P	27	3 A	35.0	83	3.1	s	40	5	0 A	6 A	.02	.25
24	44	12 P	14	6 A	29.0	88	0.0	s	52	22	9.30P	12 P	.27	
25	58	12 M	28	12 P	43.0	80	0.0	s	400	47	0A	5.30P	1.99	
26	36	0 A	19	12 P	27.5	43	8.7	sw	269	22				
27	23	3 P	12	12 P	17.5	54	9.6	nw	189	15				
28	22	4 P	5	7 A	13.5	61	9.1	n	128	17				
29	27	4 P	10	7 A	18.5	62	0.5	se	70	7				
30	52	2 P	26	0 A	39.0	58	4.5	s	148	20				
31	48	4 A	24	12 P	36.0	70	0.0	s	314	28	7 A	3 P	.09	.25

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M

J. F. HANSON, *Observer*

MONTHLY SUMMARY

January, 1938		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.40, 29th	30.71	31.00, 1927
Minimum	29.21, 25th	29.18	28.55, 1913
Mean semi-daily	30.072	30.07	
Range	1.19	1.54	2.18, 1913; 0.97, 1896
Air Temperature			
Highest	58, 25th	50.4	66.0, 1932
Lowest	—12, 19th	-7.4	-26.0, 1904
Mean	21.6	23.8	
Range	70	58.2	
Highest mean daily	43, 25th		
Lowest mean daily	3, 18th		
Mean maximum	31.2		
Mean minimum	11.9		
Greatest daily range	32, 19th		
Least daily range	6, 22nd		
Precipitation			
Precipitation. In inches	6.60	3.42	7.15, 1898; 1.07, 1896
Snow, in inches	18.50	13	33, 1898, 1923; 1.75, 1911
Maximum precipitation in 24 hrs. 2.26, 24th, 25th			
Number of days on which .01 or more inches of precipitation fell	12	11	18, 1923; 4, 1889
Wind (miles)			
Total movement	3667	5,068	7,770, 1908; 2,896, 1895
Greatest daily movement	400, 25th		
Least daily movement	26, 20th		
Mean hourly velocity	4.9	6.8	
Maximum velocity, 5 min.,	47, 25th	30	41, 1911
Wind (direction)			
Prevailing direction	nw	wnw	
North, days	2		
Northeast, days	0		
East, days	0		
Southeast, days	1		
South, days	6		
Southwest, days	1		
West, days	4		
Northwest, days	17		
Weather			
Mean relative humidity, per cent	69.9	70.1	
Mean cloudiness, per cent	62	54	78, 1932; 37, 1908
Number of clear days	9	8	16, 1922; 2, 1914
Number of fair days	8	10	18, 1890, 1926; 3, 1916
Number of cloudy days	14	13	22, 1923, 1931; 4, 1920
Number of hours bright sunshine	119	140	214, 1920; 74.2, 1932
Percent of possible hours of bright sunshine	40.5	47.6	
Thunder and lightning	25th		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1937. The third column gives extremes observed from 1889 to 1937

REMARKS

The weather for January was most unusual in many respects. The outstanding feature was the heavy rainfall, accompanied by high temperature and high wind on the 24th and 25th which melted a 12-inch blanket of snow, causing near-flood conditions.

The mean temperature for the month was 21.6 degrees compared with a normal of 23.8 degrees. The lowest temperature was –12 degrees on the 19th, which is the lowest for January since 1927 when it was also –12, with the exception of 1935 when it was –21 degrees. The highest temperature was 58 degrees on the 25th. This has been exceeded only twice since 1913 when the highest temperature was 59.5 degrees. In 1937 it was 58 degrees and in 1932, 66 degrees. The domestic heating load for January was 1346 degree-days, the normal being 1277 degree days. The load for the season to the end of January is 3935.5 degree-days compared with a normal of 3849 degree-days for this period.

The total precipitation for the month of January was 6.60 inches, the normal being 3.42 inches. This is the heaviest precipitation for January since 1836, the year rainfall records were first taken, with the exception of 1898 when the precipitation for January was 7.15 inches and 1891 when it was 6.75 inches. The total snowfall was 18.50 inches, which is 5.50 inches greater than normal for January. There was no snow on the ground after the 25th, until the last day of the month when ¼ of an inch fell.

There were 119 hours of sunshine compared to a normal of 140 hours for January. The highest wind velocity was 47 miles per hour on the 25th, the day of the heavy storm. The record for high wind velocity at this station is 48 miles per hour.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 590 February, 1938

Meteorological Observations

FOR

FEBRUARY

1938

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	24	3 P	13	12 P	18.5	43	10.0	n w	189	17				
2	29	2 P	9	3 A	19.0	54	3.5	s e	59	8				
3	32	8 P	25	1 A	28.5	79	0.0	n w	73	8	11 A	12 P	.29	T
4	38	8 A	29	12 P	33.5	59	0.0	n w	224	28				
5	39	3 P	21	8 A	30.0	68	7.2	s	125	12				
6	49	3 P	35	0 A	42.0	88	0.4	s e	208	17	6 P	12 P	.31	
7	46	1 P	26	12 P	36.0	55	3.0	n w	257	28	0 A	3 A	.07	
8	37	5 P	18	8 A	27.5	46	8.0	n w	163	18				
9	41	2 P	29	0 A	35.0	77	0.0	s e	116	7			T	
10	44	5 A	15	12 P	29.5	43	7.4	n w	310	28				
11	27	3 P	8	7 A	17.5	35	6.5	n	207	17				
12	35	8 P	18	5 A	26.5	49	0.0	s e	95	11				
13	38	3 P	33	0 A	35.5	90	0.0	s e	114	12	7 A	12 P	.30	
14	44	12 M	32	10 P	38.0	68	3.0	w	180	28	1 A	5 A	.12	
15	33	0 A	16	12 P	24.5	49	7.6	nw	283	29				
16	25	4 P	9	7 A	17.0	46	10.6	n w	246	22				
17	36	3 P	11	7 A	23.5	59	8.2	s e	100	13	7-30 P	9 P	.01	
18	44	8 P	33	0 A	38.5	77	0.5	s e	149	14			T	
19	42	2 P	31	12 P	36.5	67	0.0	n e	162	17	9 A	10 A	.02	
20	34	5 P	20	12 P	27.0	73	1.8	n	268	22	2 A	12 M	.51	4.50
21	37	3 P	15	6 A	26.0	47	10.0	n	200	18				
22	34	1 P	10	8 A	22.0	75	5.4	s	86	9	7-30 P	12 P	.06	1.00
23	40	3 P	30	0 A	35.0	87	0.0	s	74	6	0 A	4 A	.03	T
24	37	2 P	31	7 A	34.0	69	0.0	n	118	15				T
25	36	1 P	26	12 P	31.0	59	4.1	n w	222	20				
26	36	4 P	17	7 A	26.5	50	11.0	w	144	13				
27	38	2 P	20	4 A	29.0	81	0.0	s e	100	10			T	T
28	33	0 A	4	12 P	18.5	63	1.8	n w	453	42	2 A	10 A	.05	.50

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M

J. F. HANSON, *Observer*

MONTHLY SUMMARY

February, 1938		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.88, 2nd	30.63	31.05, 1920
Minimum	29.25, 28th	29.20	28.56, 1895
Mean semi-daily	30.156	30.03	
Range	1.63	1.43	1.89, 1900, 1908; 88, 1913, 1931
Air Temperature			
Highest	49, 6th	50.3	65.0, 1930
Lowest	4, 28th	-7.9	-22.5, 1918
Mean	28.8	23.5	
Range	45	58.2	
Highest mean daily	42, 6th		
Lowest mean daily	17, 16th		
Mean maximum	36.7		
Mean minimum	20.9		
Greatest daily range	29, 10th, 28th		
Least daily range	5, 13th		
Precipitation			
Precipitation. In inches	1.77	3.35	8.12, 1900; 0.62, 1901
Snow, in inches	6.00	14.27	48.75, 1893; 2.5, 1912
Maximum precipitation in 24 hrs.	.51, 20th		
Number of days on which .01 or more inches of precipitation fell	11	10	15, 1893, 1920; 4, 1901
Wind (miles)			
Total movement	4925	4,833	6,445, 1896; 3,438, 1892
Greatest daily movement	453, 28th		
Least daily movement	59, 2nd		
Mean hourly velocity	7.3	7.1	
Maximum velocity, 5 min.,	42, 28th	29	48, 1937
Wind (direction)			
Prevailing direction	nw	wnw	
North, days	4		
Northeast, days	1		
East, days	0		
Southeast, days	8		
South, days	3		
Southwest, days	0		
West, days	2		
Northwest, days	10		
Weather			
Mean relative humidity, per cent	59.5	67.4	
Mean cloudiness, per cent	65	50.5	66, 1890, 1927; 31, 1905
Number of clear days	9	10	17, 1924; 2, 1927
Number of fair days	4	8	16, 1920; 2, 1936
Number of cloudy days	15	10	16, 1894; 2, 1920
Number of hours bright sunshine	110	160	221, 1924; 110 1927
Percent of possible hours of bright sunshine	37.2	54.1	
Thunder and lightning			

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1937. The third column gives extremes observed from 1889 to 1937

REMARKS

The month of February was considerably warmer than usual, with less precipitation and less sunshine than normal. The mean temperature for the month was 28.8 degrees, while the normal is 23.5 degrees. Only twice since 1925 has the mean temperature for February been higher, with 30.0 degrees in 1937 and 29.2 degrees in 1930. In 1934 the mean for February was 11.6 degrees, the coldest February on record. The maximum temperature for the month was 49 degrees on the 6th and the minimum temperature, 4 degrees on the 28th. The lowest temperature for the winter to date is —12 degrees which occurred on January 19. Last year the temperature did not fall below zero, the lowest being 5 degrees in November. The heating load to date is 4949 degree-days, the normal for this period being 5011 degree-days. The total precipitation for the month was 1.77 inches, compared with a normal of 3.35 inches. This is the lowest precipitation for February since 1905, when it was 1.70 inches, with the exception of 1930 when it was 1.39 inches. The total snowfall for the month was 6.00 inches which is 8.27 inches less than the normal fall for February. Last year only one-half inch of snow was recorded during February, which is the least on record for the month. There were 110 hours of bright sunshine, compared with a normal of 160 hours for February This is the least number of hours recorded for February since the Station was established in 1889, and has been equaled only once, in 1927 when there were also 110 hours of bright sunshine.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 591 March, 1938

Meteorological Observations

FOR

MARCH

1938

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	38	12 P	4	0 A	21.0	58	2.0	w	267	28				
2	53	1 P	37	7 A	45.0	50	6.5	s	206	17				
3	43	1 A	6	12 P	24.5	55	5.2	n w	316	22				
4	28	5 P	0	7 A	14.0	58	9.5	n w	148	14				
5	40	12 P	25	0 A	32.5	90	0.0	s e	173	13	5-30 A	12 P	.45	1.25
6	39	0 A	26	12 P	32.5	54	6.7	n w	297	28	0 A	1 A	.04	
7	39	1 P	23	7 A	31.0	59	8.5	w	165	20				
8	34	4 P	22	12 P	28.0	43	4.7	w	262	32				
9	35	3 P	21	1 A	28.0	43	11.1	n w	133	28				
10	36	5 P	20	6 A	28.0	59	4.1	nw	103	18				
11	43	3 P	15	7 A	29.0	58	8.8	s	91	12				
12	46	5 P	30	11 P	38.0	76	4.5	s e	85	7	2 A	3 A	.01	T
13	55	4 P	32	0 A	43.5	76	3.2	s e	152	14			T	
14	47	0 A	28	12 P	37.5	41	2.1	n	176	20				
15	46	5 P	19	7 A	32.5	43	11.8	nw	147	11				
16	34	2 P	28	7 A	31.0	82	0.0	s e	68	8	1 P	12 P	.51	
17	38	4 P	33	12 P	35.5	82	0.0	n w	158	11	0 A	9 P	.15	
18	48	4 P	33	0 A	40.5	70	4.0	n w	177	15				
19	56	5 P	36	7 A	46.0	64	11.0	n w	153	15				
20	47	6 P	32	6 A	39.5	87	0.0	w	30	3	12 M	3 P	.01	
21	65	4 P	39	0 A	52.0	43	12.1	n w	197	25				
22	78	4 P	33	6 A	55.5	55	12.2	s e	76	12				
23	79	4 P	38	7 A	58.5	74	9.4	s	152	20				
24	56	3 A	36	12 P	46.0	60	8.8	n w	322	28				
25	57	5 P	31	7 A	44.0	43	12.3	n	183	15				
26	44	11 A	31	6 A	37.5	73	0.0	s e	155	20	11-30 A	3-30 P	.42	
27	47	3 P	32	12 P	39.5	47	8.4	w	340	28				
28	52	4 P	25	6 A	38.5	45	12.3	n w	120	12				
29	66	5 P	36	5 A	51.0	45	9.8	e	122	25				
30	41	12 M	38	4 A	39.5	88	0.0	e	77	8	2 P	12 P	.18	
31	43	8 P	37	5 A	40.0	91	0.0	n w	66	5	6 A	8 P	.23	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M

J. F. HANSON, *Observer*

MONTHLY SUMMARY

March, 1938		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.45, 4th	30.60	30.96, 1904
Minimum	29.35, 6th	29.26	28.47, 1914
Mean semi-daily	30.008	30.02	
Range	1.10	1.35	2,10, 1914; 0.85, 1915
Air Temperature			
Highest	79, 23rd	63.9	79.5, 1907, 1921
Lowest	0, 4th	5.7	-7.5, 1906
Mean	37.4	34.2	
Range	79	58.2	
Highest mean daily	58.5, 23rd		
Lowest mean daily	14, 4th		
Mean maximum	47.5		
Mean minimum	27.3		
Greatest daily range	45, 22nd		
Least daily range	3, 30th		
Precipitation			
Precipitation. In inches	2.00	3.68	7.13, 1899; 0.12, 1915
Snow, in inches	1.25	8.11	27, 1899; 0, 1921
Maximum precipitation in 24 hrs. .58, 16th, 17th			
Number of days on which .01 or more inches of precipitation fell	9	11	17, 1890, 1913, 1936; 3, 1915
Wind (miles)			
Total movement	5117	5,738	7,628, 1932; 3,006, 1905
Greatest daily movement	340, 27th		
Least daily movement	30, 20th		
Mean hourly velocity	6.9	7.7	
Maximum velocity, 5 min.,	32, 8th	29	48, 1932
Wind (direction)			
Prevailing direction	wnw	wnw	
North, days	2		
Northeast, days	0		
East, days	2		
Southeast, days	6		
South, days	3		
Southwest, days	0		
West, days	5		
Northwest, days	13		
Weather			
Mean relative humidity, per cent	61.7	64.4	
Mean cloudiness, per cent	58	51.0	68, 1901; 27, 1915
Number of clear days	13	11	22, 1924; 3, 1901
Number of fair days	8	9	17, 1900; 4, 1895, 1936
Number of cloudy days	10	11	21, 1901; 1, 1915
Number of hours bright sunshine	189	201	292, 1924; 93 1901
Percent of possible hours of bright sunshine	50.9	54.2	
Thunder and lightning			

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1937. The third column gives extremes observed from 1889 to 1937

REMARKS

The weather during March was warmer than usual with less rain and snow than normal. The normal mean temperature for March is 34.2 degrees, while this year the mean temperature was 37.4 degrees. The highest temperature was 79 degrees on the 23rd. This has been exceeded only twice since 1889. In March 1907 and 1921 maximum readings of 79.5 degrees were recorded. The lowest temperature during the past month was 0 degrees on the 4th. The total heating load for the current season to the end of March is 5805 degree-days, as compared to a normal of 5966 degree-days for that period.

The total precipitation during the month was 2 inches, the normal for March being 3.68 inches. Only 1.25 inches of snow fell during the month, the normal being 8.11 inches. There were 189 hours of bright sunshine compared to a normal of 201 hours. There was slightly less wind than usual, with a total of 5117 miles. The normal is 5738 miles.

Dr. J. K. Shaw of the Pomology Department makes the following comments: "The past winter, while more severe than the previous ones, does not seem to have caused much damage to fruit plants. Peach fruit buds were badly killed in some orchards, while others came through with plenty of live buds. It was a winter that will bring out the value of good air drainage for peach orchard sites. There has been some winter injury to more tender fruit plants. Because the ground was bare much of the time, some injury to strawberry crowns may appear later."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 592 April, 1938

Meteorological Observations

FOR

APRIL

1938

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	64	3 P	39	12 P	51.5	50	12.4	w	160	20	0 A	2 A	.05	
2	50	2 P	34	6 A	42.0	56	6.5	n w	204	20				
3	41	3 P	29	12 P	35.0	49	12.4	n w	304	28				
4	47	12 M	27	2 A	37.0	63	7.0	w	163	25			T	T
5	37	1 P	23	12 P	30.0	51	8.0	n w	259	28				T
6	39	4 P	18	5 A	28.5	45	5.0	n w	83	11				
7	51	5 P	29	6 A	40.0	33	2.0	n	121	12				
8	43	12 M	24	6 A	33.5	67	1.0	e	94	14	2-30 P	12 P	.77	.25
9	37	4 P	32	0 A	34.5	91	0.0	n w	117	9	0 A	10 P	.61	
10	42	3 P	28	12 P	35.0	48	10.6	n w	352	40				T
11	54	3 P	22	6 A	38.0	48	13.0	s e	211	22				
12	68	2 P	38	4 A	53.0	67	9.0	s	144	9			T	
13	69	4 P	38	6 A	53.5	64	10.0	s e	110	10			T	
14	80	5 P	48	6 A	64.0	60	12.0	s w	106	11				
15	79	2 P	52	12 P	65.5	73	3.5	n	118	20	3 P	8 P	.14	
16	68	2 P	43	6 A	55.5	40	13.4	s e	142	15				
17	63	12 M	34	5 A	48.5	55	9.0	s	88	20				
18	58	3 P	50	0 A	54.0	89	0.0	s	153	12	3-30 A	10 P	.78	
19	68	12 M	48	12 P	58.0	64	8.2	n w	139	22	5 A	8 A	.08	
20	84	2 P	44	5 A	64.0	56	9.9	s w	145	28	5 P	10 P	.13	
21	74	3 P	51	5 A	62.5	46	12.0	n	104	15	0 A	1 A	.01	
22	59	4 P	39	12 P	49.0	72	1.5	n w	131	32	8 A	12 M	.12	
23	61	4 P	36	6 A	48.5	41	13.7	n w	216	18				
24	65	2 P	34	6 A	49.5	45	11.6	e	129	15				
25	64	1 P	37	5 A	50.5	61	11.0	w	93	7			T	
26	73	6 P	38	5 A	55.5	51	13.8	s w	39	7				
27	79	2 P	46	4 A	62.5	58	13.9	s e	211	20				
28	88	4 P	51	6 A	69.5	52	13.9	s e	160	22				
29	68	12 M	46	12 P	57.0	75	9.5	n e	124	12	1 P	3 P	.14	
30	56	2 P	42	5 A	49.0	84	2.2	s w	99	15	5 A	8 P	.24	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M

J. F. HANSON, *Observer*

MONTHLY SUMMARY

April, 1938		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.50, 7th, 8th	30.48	30.71, 1911
Minimum	29.10, 9th	29.41	28.99, 1907, 1929
Mean semi-daily	30.050	29.99	
Range	1.40	1.08	1,52,1930; 0.72,1919
Air Temperature			
Highest	88, 28th	79.5	88.5, 1896
Lowest	18, 6th	21.6	8.5, 1923
Mean	49.2	45.8	
Range	70	57.8	
Highest mean daily	69.5, 28th		
Lowest mean daily	28.5, 6th		
Mean maximum	61		
Mean minimum	37.3		
Greatest daily range	40, 20th		
Least daily range	5, 9th		
Precipitation			
Precipitation. In inches	3.07	3.27	6.89, 1929; 0.76, 1892
Snow, in inches	.25	2.32	11, 1891; 0, 1910
Maximum precipitation in 24 hrs. 1.33, 8th, 9th			
Number of days on which .01 or more inches of precipitation fell	11	11	18, 1909; 3, 1892
Wind (miles)			
Total movement	4519	5,436	8,208, 1908; 3,853, 1917
Greatest daily movement	352, 10th		
Least daily movement	39, 26th		
Mean hourly velocity	6.3	7.5	
Maximum velocity, 5 min.,	40, 10th	29	40, 1935
Wind (direction)			
Prevailing direction	w	wnw	
North, days	3		
Northeast, days	1		
East, days	2		
Southeast, days	5		
South, days	3		
Southwest, days	4		
West, days	3		
Northwest, days	9		
Weather			
Mean relative humidity, per cent	58.5	62.0	
Mean cloudiness, per cent	52	49.2	75, 1901; 34, 1925, 1927
Number of clear days	15	11	19, 1911; 3, 1898, 1902
Number of fair days	8	10	18, 1915; 2, 1894, 1901
Number of cloudy days	7	9	22, 1901; 3, 1899, 1924
Number of hours bright sunshine	256	221	296, 1911; 103, 1901
Percent of possible hours of bright sunshine	63.7	55	
Thunder and lightning	1st, 20th, 29th		
Frosts after 15th	none		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1937. The third column gives extremes observed from 1889 to 1937

REMARKS

The weather during April was unusually pleasant, with the season at the end of the month considerably in advance of normal. The mean temperature for the month was 49.2 degrees, the normal being 45.8 degrees. This is the highest mean temperature for April since 1921 when it was 52.0 degrees. The highest temperature for the month was 88 degrees on the 28th. This was equalled in 1915, and exceeded in 1896 when it reached 88.5. The lowest temperature was 18 degrees on the 6th. The total number of degree-days for the current heating season to the end of April is 6280.5, while the normal for this period is 6542 degree-days. The total precipitation during the month was 3.07 inches, while the normal is 3.27 inches. The snowfall was one-quarter inch, the average snowfall during April being 2.32 inches. There were 256 hours of bright sunshine, the normal for April being 221 hours. The mean relative humidity was 58.5 percent, compared with a normal of 62 percent.

Dr. J. K. Shaw gives the following comment on the fruit crop: "The development of fruit plants is fully ten days more advanced than the average due to warm days during April. The average date of full bloom of McIntosh apple trees for the past sixteen years is May 15. A heavy bloom is opening in most of the College orchards, giving promise of a full crop. Not enough peach fruit buds were winter-killed to reduce the bloom seriously. Pear and plum trees are blooming heavily. There is a full bloom on apple trees, except on some that fruited heavily last year. No information is yet available as to conditions over the state, but as last year's crop was generally heavier than that at the College, it is probable that bloom is generally less. Due to the advanced state of the trees, damage from late frosts may be feared but frost damage is rare in Massachusetts, except in orchards with poor air drainage."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 593 May, 1938

Meteorological Observations

FOR

MAY

1938

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	65	4 P	39	5 A	52.0	48	14.0	w	139	17				
2	71	4 P	41	6 A	56.0	42	14.1	w	174	25				
3	69	4 P	43	6 A	56.0	39	9.6	nw	131	18				
4	74	4 P	34	5 A	54.0	38	14.[illegible]	nw	67	9				
5	73	5 P	47	1 A	60.0	49	11.8	se	88	11				
6	68	11 A	42	12 P	55.0	60	7.5	e	96	11	4 A	6-30 A	.35	
7	61	2 P	39	2 A	50.0	65	7.6	w	152	22	1-30 A	2-30 A	.04	
8	66	2 P	43	3 A	54.5	60	6.0	w	56	5				
9	70	1 P	39	5 A	54.5	64	7.5	s	83	14				
10	61	6 P	47	12 P	54.0	73	4.9	w	113	13	7 A	2-30 P	.28	
11	60	4 P	39	12 P	49.5	51	7.0	w	100	13				
12	58	3 P	37	2 A	47.5	56	6.0	w	93	14				
13	56	1 P	34	5 A	45.0	63	9.2	sw	119	40	11 A	3 P	.01	
14	69	1 P	39	4 A	54.0	58	8.8	s	111	12	8 P	12 P	.26	
15	49	3 P	46	6 A	47.5	88	0.0	n	231	40	0 A	9-30 P	1.87	
16	60	4 P	43	12 P	51.5	65	5.5	nw	297	32				
17	69	5 P	36	5 A	52.5	51	12.1	nw	167	22				
18	71	2 P	42	5 A	56.5	59	12.0	s	84	12				
19	69	4 P	42	6 A	55.5	71	6.7	s	113	11	7-30 P	10-30 P	.01	
20	61	11 P	52	5 A	56.5	87	0.0	se	167	13	9 A	3 P	.17	
21	74	4 P	55	12 P	64.5	60	13.8	nw	179	22	4 A	6-30 A	.18	
22	74	5 P	51	3 A	62.5	71	10.0	se	86	10	6 P	6-30 P	.02	
23	73	3 P	54	5 A	63.5	71	7.2	s	120	13	2-30 A	5-30 P	.42	
24	75	4 P	56	5 A	65.5	81	1.8	s	176	18				
25	68	3 P	41	5 A	54.5	55	14.8	nw	131	17				
26	68	3 P	42	6 A	55.0	68	7.7	s	86	8	7 P	12 P	.11	
27	71	4 P	56	4 A	63.5	79	5.0	s	62	8	0 A	3 A	.09	
28	77	3 P	53	4 A	65.0	73	4.4	e	84	12				
29	66	2 P	54	5 A	60.0	68	2.8	e	104	18			T	
30	67	2 P	39	5 A	53.0	50	15.0	e	127	13				
31	72	5 P	35	5 A	53.5	47	15.0	s	61	8				

,Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M

J. F. HANSON, *Observe*

MONTHLY SUMMARY

May, 1938		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.43, 30th, 31st	30.38	30.62, 1936
Minimum	29.10, 15th	29.51	29.16, 1893
Mean semi-daily	29.940	29.95	
Range	1.33	88	1.21, 1929; 0.60, 1899
Air Temperature			
Highest	77, 28th	85.5	94.5, 1911
Lowest	34, 4th, 13th	30.8	24.0, 1900
Mean	55.6	56.8	
Range	43	54.6	
Highest mean daily	65.5, 24th		
Lowest mean daily	45.0, 13th		
Mean maximum	67.3		
Mean minimum	43.9		
Greatest daily range	40, 4th		
Least daily range	3, 15th		
Precipitation			
Precipitation. In inches	3.81	3.63	7.44, 1931; 0.48, 1903
Snow, in inches			
Maximum precipitation in 24 hrs.	2.11, 14th, 15th		
Number of days on which .01 or more inches of precipitation fell	13	12	20, 1901; 5, 1903
Wind (miles)			
Total movement	3797	4,540	5,946, 1907; 2,180, 1894
Greatest daily movement	297, 16th		
Least daily movement	56, 8th		
Mean hourly velocity	5.1	6.1	
Maximum velocity, 5 min.	40, 13th, 15th	25	45, 1935
Wind (direction)			
Prevailing direction	sw	w	
North, days	1		
Northeast, days	0		
East, days	4		
Southeast, days	3		
South, days	9		
Southwest, days	1		
West, days	7		
Northwest, days	6		
Weather			
Mean relative humidity, per cent	61.6	60.6	
Mean cloudiness, per cent	53	51.5	70, 1901; 30, 1923
Number of clear days	11	10	20, 1923; 0, 1927
Number of fair days	15	11	17, 1907, 1926; 5, 1923
Number of cloudy days	5	10	20, 1927; 3, 1903, 1922
Number of hours bright sunshine	262	250.1	334, 1922; 137, 1927
Percent of possible hours of bright sunshine	57.9	55.2	
Thunder and lightning	6th, 7th, 10th		
Frosts	4th, 13th, 31st		
Last frost		12th	June 8, 1932; Apr. 23, 1904

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1937 The third column gives extremes observed from 1889 to 1937

REMARKS

The weather during May was very nearly normal in most respects. The mean temperature for the month was 55.6 degrees, the mean for May being 56.8 degrees. The highest temperature was 77 degrees on the 28th. This is a very low maximum for May, the normal being 85.5 degrees. The lowest temperature was 34 degrees on the 4th and 13th. There was frost on these dates as well as on May 31 when a temperature of 35 degrees was recorded. The heating load for the season is about 5 per cent lower than normal, being 6573 degree-days to the end of May. The normal to this date is 6808 degree-days.

The precipitation during the month was 3.81 inches, the normal rainfall for May being 3.63 inches. The total precipitation since January 1 is now 17.25 inches, the normal being 17.35 inches. There were 262 hours of bright sunshine compared to a normal of 250.1 hours. The total wind movement during the month was 3797 miles, the normal for May being 4540 miles. There were high winds of 40 miles per hour on the 13th and 15th. Many trees blew down in the town on the 15th. The gusts of wind which caused this damage were greatly in excess of 40 miles per hour. The anemometer used at the observatory records average wind velocity during the time required to blow one mile and does not indicate maximum velocity.

Dr. J. K. Shaw of the Pomology Department makes the following report: "The blossoming period of most fruit trees was about eleven days earlier than normal and much prolonged. The temperature, especially at night, was low. There were several days in which bees were active. The set of McIntosh in our orchards is poor, and a few scattered reports indicate that these conditions may be more or less general over the state. Other varieties appear to have set heavily. There have been a few nights in which frosts have occurred in low places. It would not be surprising if strawberry blossoms have suffered from frost. Other fruits promise normal to good crops."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 594 June, 1938

Meteorological Observations

FOR

JUNE

1938

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	78	3 P	42	6 A	60.0	47	15.1	s	114	10				
2	76	3 P	43	5 A	59.5	65	11.6	s	194	15				
3	75	2 P	57	12 P	66.0	72	7.0	w	110	12	3-30 A	8 A	.29	
4	71	2 P	50	5 A	60.5	78	2.7	sw	46	6	11 P	2 P	.13	
5	75	1 P	57	12 P	66.0	57	7.5	sw	71	12				
6	76	5 P	46	6 A	61.0	54	12.5	sw	130	13				
7	87	2 P	61	5 A	74.0	70	11.2	se	204	20	9 P	11 P	.20	
8	75	7 P	55	12 P	65.0	70	9.0	w	82	12	1 A	6 A	.24	
9	76	4 P	48	5 A	62.0	50	15.2	w	122	17				
10	77	4 P	44	6 A	60.5	51	14.2	se	93	10				
11	72	6 P	60	5 A	66.0	90	0.0	se	92	6	7 A	12 P	1.28	
12	84	4 P	63	12 P	73.5	76	10.0	nw	104	15	6 P	12 P	1.10	
13	74	7 P	57	12 P	65.5	71	8.5	n	140	15	0 A	6 A	.42	
14	79	4 P	52	6 A	65.5	53	15.0	n	98	13				
15	79	2 P	50	5 A	64.5	47	15.3	ne	116	13			T	
16	72	2 P	56	6 A	64 0	71	6.1	e	87	9				
17	79	4 P	59	0 A	69.0	79	7.0	se	88	12	8 A	9 A	.02	
18	85	5 P	60	2 A	72.5	73	11.7	sw	95	8				
19	84	3 P	63	6 A	73.5	67	12.3	nw	88	10			T	
20	86	4 P	56	5 A	71.0	59	13.0	nw	65	10				
21	91	4 P	58	5 A	74.5	57	15.3	se	65	7				
22	85	5 P	62	5 A	73.5	64	14.0	s	101	9				
23	88	2 P	70	12 P	79.0	70	9.2	se	113	10				
24	91	4 P	68	1 A	79.5	66	11.5	s	58	9				
25	89	2 P	68	6 A	78.5	67	12.0	s	170	17				
26	74	0 A	57	12 P	65.5	83	0.0	n	202	15	5-30 A	12 P	2.04	
27	60	3 P	55	12 P	57.5	90	0.0	n	114	11	0 A	12 P	2.55	
28	62	2 P	55	0 A	58.5	82	0.0	n	134	12	3 A	9 P	.18	
29	77	3 P	52	4 A	64.5	50	15.3	n	150	17				
30	78	4 P	45	6 A	61.5	50	13.8	sw	62	5				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M

J. F. HANSON, *Observer*

MONTHLY SUMMARY

June, 1938		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.41, 10th	30.31	30.54, 1889
Minimum	29.65, 26th	29.56	29.24, 1902
Mean semi-daily	29.989	29.961	
Range	0.76	.75	1.27, 1902; 0.52, 1916
Air Temperature			
Highest	91, 21st, 24th	91.1	101.0, 1919
Lowest	42, 1st	40.0	34.0, 1891
Mean	67.1	65.4	
Range	49	51.2	
Highest mean daily	79.5, 24th		
Lowest mean daily	57.5, 27th		
Mean maximum	78.5		
Mean minimum	55.6		
Greatest daily range	36, 1st		
Least daily range	5, 27th		
Precipitation			
Precipitation. In inches	8.45	3.54	9.68, 1922; 0.76, 1908
Snow, in inches			
Maximum precipitation in 24 hrs.	3.64, 26th, 27th		
Number of days on which .01 or more inches of precipitation fell	11	10	17, 1922; 4, 1908
Wind (miles)			
Total movement	3308	3,584	4,571, 1908; 1,409, 1906
Greatest daily movement	204, 7th		
Least daily movement	46, 4th		
Mean hourly velocity	4.6	5.0	
Maximum velocity, 5 min.,	20, 7th	23	40, 1932
Wind (direction)			
Prevailing direction	sw	wsw	
North, days	6		
Northeast, days	1		
East, days	1		
Southeast, days	6		
South, days	5		
Southwest, days	5		
West, days	3		
Northwest, days	3		
Weather			
Mean relative humidity, per cent.	66	67.0	
Mean cloudiness, per cent	66	50.1	71, 1903; 28, 1908
Number of clear days	17	9	22, 1908; 1, 1907, 1926
Number of fair days	8	13	23, 1912; 4, 1895, 1903
Number of cloudy days	5	8	22, 1903; 1, 1923
Number of hours bright sunshine	296	257.4	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	64.8	56.2	
Thunder and lightning	7th, 11th, 12th		
Frosts	none		
Last frost	May 31	M'y12	June 8, 1932; Apr. 23, 1904

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1937. The third column gives extremes observed from 1889 to 1937

REMARKS

The weather during June was marked by a prolonged warm spell and very heavy precipitation most of which occurred in two storms.

The mean temperature was 67.1, degrees, compared with a normal mean of 65.4 degrees for June. The minimum temperature was 42 degrees on the 1st and the maximum temperature, 91 degrees on the 21st and 24th. This maximum temperature has been exceeded many times during June of other years. However, an eight-day heat wave from the 18th to the 25th, accompanied by excessive humidity, resulted in a period of very uncomfortable weather. Other excessive warm spells in June were recorded in 1901, 1909, 1919, and 1933. It is interesting to recall that the mean temperature for the three summer months last year was the highest mean temperature for summer since 1876.

The total precipitation was 8.45 inches compared with a normal of 3.54 inches. This is the greatest precipitation for June since 1889, with the exception of 1922 when 9.68 inches were recorded. Nearly all the rain fell in two heavy storms. From the 11th to the 13th, 2.80 inches were recorded, and during the storm of the 26th to the 28th, 4.77 inches fell. In this latter storm 3.64 inches were recorded in 24 hours, equaling the total rainfall for May of this year. Last year also heavy rains fell in June, the total being 5.72 inches.

There were 296 hours of sunshine compared with a normal of 257 hours. The mean humidity for the month was nearly normal. The total wind travel was 3308 miles compared with a normal of 3584 miles.

Dr. J. K. Shaw of the Pomology Department gives the following report on the fruit crop: "As reported last month the set of McIntosh apples was generally poor due largely to unfavorable weather during and immediately following blooming time. The fact that some trees and some orchards set moderate crops suggests that this was not the only factor involved. Other varieties of apples have set well. There is promise of a good peach crop and most other fruits will have good crops. Raspberries suffered some bud killing in early spring and will give a short crop. The strawberry crop was good as rains came at opportune times to promote growth but with little rot. The heavy rains at the close of the month will insure an abundant water supply for fruit trees for some time to come."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 595 July, 1938

Meteorological Observations

FOR

JULY

1938

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	76	4 P	58	6 A	67.0	83	4.5	s	150	14	6 A	9 P	.05	
2	72	3 P	58	12 P	65.0	61	9.8	nw	162	13			T	
3	79	12 M	47	5 A	63.0	52	11.5	nw	168	15				
4	70	4 P	50	5 A	60.0	64	7.8	nw	164	20				
5	84	2 P	48	4 A	66.0	54	15.0	w	119	17				
6	79	4 P	58	12 P	68.5	50	15.0	w	154	22				
7	82	5 P	51	5 A	66.5	58	13.0	s	62	6				
8	86	2 P	62	3 A	74.0	66	10.9	se	153	13				
9	87	2 P	66	5 A	76.5	69	12.0	se	176	15	6 P	8 P	.06	
10	87	4 P	66	12 P	76.5	58	15.1	nw	158	17				
11	85	2 P	60	5 A	72.5	73	10.5	nw	76	28	4 P	9 P	.53	
12	80	3 P	64	1 A	72.0	84	3.0	nw	69	8	2-30 A	3-30 A	.11	
13	84	4 P	60	6 A	72.0	66	11.0	s	68	7				
14	82	2 P	66	4 A	74.0	79	6.3	s	136	12	8 A	11-30 P	.12	
15	84	2 P	66	12 P	75.0	63	9.0	w	100	11				
16	82	4 P	58	6 A	70.0	58	15.0	sw	80	8				
17	87	3 P	58	5 A	72.5	63	13.5	se	92	10				
18	74	0 A	68	12 P	71.0	90	0.5	se	92	12	7-30 A	8 P	2.07	
19	70	6 P	67	6 A	68.5	87	0.0	nw	41	9	5-30 A	11-30 P	1.27	
20	79	4 P	67	5 A	73.0	83	1.0	w	60	7				
21	73	10 A	67	12 P	70.0	86	0.0	se	82	6	7 A	4-30 P	.57	
22	78	12 M	67	0 A	72.5	82	1.0	se	125	13	0 A	3 P	.60	
23	75	2 P	69	12 P	72.0	86	0.2	se	178	11	8 A	6 P	.30	
24	76	3 P	68	5 A	72.0	81	2.0	se	155	13	0 A	4 A	.07	
25	84	3 P	67	5 A	75.5	73	12.2	s	122	10				
26	86	2 P	70	12 P	78.0	75	5.5	s	122	12				
27	86	3 P	68	2 A	77.0	81	6.3	s	105	10	3 P	4 P	.02	
28	84	4 P	65	5 A	74.5	79	8.9	sw	67	7				
29	84	2 P	69	12 P	76.5	87	3.1	s	106	22	4 A	7 P	1.68	
30	85	2 P	65	6 A	75.0	68	14.6	w	88	10				
31	88	1 P	62	4 A	75.0	66	9.8	s	72	8				

.Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M

J. F. HANSON, *Observer*

MONTHLY SUMMARY

July, 1938		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.17, 31st	30.28	30.59, 1892
Minimum	29.70, 14th	29.60	29.27, 1932
Mean semi-daily	29.982	29.972	
Range	.47	.68	0.97, 1892; 0.51, 1895, 1899
Air Temperature			
Highest	88, 31st	93.9	104.0, 1911
Lowest	47, 3rd	45.5	40.0, 1890, 1898
Mean	71.7	70.6	
Range	41	48.4	
Highest mean daily	78, 26th		
Lowest mean daily	60, 4th		
Mean maximum	80.9		
Mean minimum	62.4		
Greatest daily range	36, 5th		
Least daily range	3, 19th		
Precipitation			
Precipitation. In inches	7.45	4.33	14.51, 1897; 0.70, 1929
Snow, in inches			
Maximum precipitation in 24 hrs. 2.07, 18th			
Number of days on which .01 or more inches of precipitation fell	13	11	20, 1915; 4, 1924
Wind (miles)			
Total movement	3502	3,485	5,097, 1909; 1,109, 1894
Greatest daily movement	178, 22nd		
Least daily movement	41, 19th		
Mean hourly velocity	4.7	4.6	
Maximum velocity, 5 min.,	28, 11th	24	44, 1936
Wind (direction)			
Prevailing direction	ssw	sw	
North, days	0		
Northeast, days	0		
East, days	0		
Southeast, days	8		
South, days	9		
Southwest, days	2		
West, days	5		
Northwest, days	7		
Weather			
Mean relative humidity, per cent	71.8	68.0	
Mean cloudiness, per cent	55	50.1	69, 1914; 31, 1924
Number of clear days	12	9	22, 1923; 0, 1915
Number of fair days	9	14	24, '09, '21; 5, '89, '23, '28, '36
Number of cloudy days	10	8	18, 1889; 0, 1910
Number of hours bright sunshine	248	267.0	371, 1910; 182, 1889
Percent of possible hours of bright sunshine	53.7	57.8	
Thunder and lightning	9, 11, 12, 18, 21, 29		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1937. The third column gives extremes observed from 1889 to 1937

REMARKS

The outstanding feature of the weather during July was the heavy precipitation. This, together with the heavy fall which occurred in June, marks the summer so far as the wettest on record since 1897. Some surrounding towns experienced even heavier precipitation than was recorded here at the station and in other areas throughout the state, especially around greater Boston, flood conditions prevailed.

A total of 7.45 inches fell in July, and this has been exceeded only three times in July since 1889, viz., 9.13 inches in 1915, 14.51 in 1897, and 10.52 in 1889. The normal fall for July is 4.33 inches. In June 8.45 inches fell, making a total of 15.90 inches for the two months. The precipitation for this same period in 1897 was 21.16 inches, with 6.65 inches in June and 14.51 inches in July. The total precipitation for the present year since January 1 is 33.15 inches, while the normal for the same period is 25.22 inches.

The mean temperature was 71.7 degrees, as compared to a normal of 70.6 degrees for July. The maximum temperature was 88 degrees on the 31st and the minimum, 47 on the 3rd. The normal high for July is 93.9 degrees. The all-time record for high temperature at this station is 104 degrees in July, 1911. The relative humidity was higher than usual, with a mean of 71.8 percent for the month, as compared to a normal of 68.0 per cent. There were 248 hours of sunshine, while the normal is 267 hours. A total of 3502 miles of wind travel were recorded, the normal for July being 3435 miles. Thunder and lightning occurred on six days.

Dr. J. K. Shaw of the Pomology Department gives the following report on the fruit crop: "The periods of excessive rain during the past month caused much damage to raspberries and blueberries. The berries could not be picked at usual intervals, and they became soft and dropped. The wet weather favored the development of scab and brown rot of peaches and other diseases. Only well sprayed trees can escape the severe losses. On lighter soils there must have been considerable loss of certain soil nutrients from leaching. Low, wet spots in fields of various crops show poor growth and yellow coloration."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 596 August, 1938

Meteorological Observations

FOR

AUGUST

1938

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	86	3 P	71	6 A	78.5	81	6.2	se	150	17	4 A	9-30 P	.50	
2	89	4 P	68	5 A	78.5	65	14.5	s	84	8				
3	93	3 P	69	6 A	81.0	66	14.4	s	80	7				
4	91	2 P	71	6 A	81.0	76	11.0	se	143	14				
5	89	4 P	68	12 P	78.5	70	11.6	s	83	8				
6	89	2 P	63	5 A	76.0	74	10.0	s	60	10	3 P	7 P	.14	
7	88	3 P	72	5 A	80.0	78	8.8	s	91	8	5-30 A	6 A	.03	
8	82	3 P	66	6 A	74.0	69	7.5	nw	75	9	5 P	9 P	.05	
9	83	3 P	62	12 P	72.5	69	7.2	nw	78	9			T	
10	79	4 P	56	6 A	67.5	52	11.8	s	99	9	9 P	12 P	.09	
11	67	4 P	59	1 A	63.0	83	0.0	s	118	12	0 A	9 A	1.08	
12	77	5 P	59	6 A	68.0	55	12.6	nw	170	22				
13	83	4 P	55	6 A	69.0	68	10.1	nw	114	17				
14	85	3 P	59	6 A	72.0	75	7.3	sw	50	6			T	
15	93	5 P	64	6 A	78.5	72	9.6	sw	84	8				
16	92	4 P	73	6 A	82.5	77	5.3	nw	48	5				
17	81	1 P	72	6 A	76.5	80	0.2	se	89	8			T	
18	79	1 P	67	12 P	73.0	86	0.2	se	138	11	11 A	5 P	.10	
19	82	4 P	60	6 A	71.0	65	13.8	nw	137	15				
20	87	5 P	56	7 A	71.5	68	12.2	n	44	6				
21	87	2 P	58	6 A	72.5	64	13.7	s	67	8				
22	85	4 P	62	5 A	73.5	74	8.0	nw	100	11			T	
23	85	3 P	56	7 A	70.5	63	11.3	w	76	10			T	
24	73	2 P	60	12 P	66.5	54	7.2	nw	244	32	0 A	1-30 A	.05	
25	77	2 P	57	3 A	67.0	61	11.1	n	157	28				
26	77	3 P	54	3 A	65.5	68	11.0	nw	73	12				
27	83	4 P	54	5 A	68.5	72	7.3	s	54	18			T	
28	77	4 P	52	12 P	64.5	60	13.5	n	99	14				
29	80	3 P	50	2 A	65.0	69	10.2	se	56	5				
30	85	4 P	52	6 A	68.5	68	7.0	w	50	10				
31	82	3 P	57	5 A	69.5	85	1.4	s	69	11			T	

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M

J. F. HANSON, *Observer*

MONTHLY SUMMARY

August, 1938		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.19, 29th	30.32	30.48, 1918
Minimum	29.62, 24th	29.63	28.87, 1930
Mean semi-daily	29.985	30.00	
Range	.57	.69	1.49, 1930; 0.44, 1894
Air Temperature			
Highest	93, 3rd, 15th	91.3	100.0, 1918
Lowest	50, 29th	42.9	37.0, 1894, 1908
Mean	72.4	68.4	
Range	43	48.4	
Highest mean daily	82.5, 16th		
Lowest mean daily	63, 11th		
Mean maximum	83.4		
Mean minimum	61.4		
Greatest daily range	33, 30th		
Least daily range	8, 11th		
Precipitation			
Precipitation. In inches	2.04	4.24	8.40, 1928; 0.31, 1894
Snow, in inches			
Maximum precipitation in 24 hrs.	1.17, 10th and 11th		
Number of days on which .01 or more inches of precipitation fell	8	10	16, 1892, 1933; 4, 1889
Wind (miles)			
Total movement	2980	3,099	4,271, 1910; 1,920, 1894
Greatest daily movement	244, 24th		
Least daily movement	44, 20th		
Mean hourly velocity	4.0	4.2	
Maximum velocity, 5 min.,	32, 24th	21	35, 1915
Wind (direction)			
Prevailing direction	w	sw	
North, days	3		
Northeast, days	0		
East, days	0		
Southeast, days	5		
South, days	10		
Southwest, days	2		
West, days	2		
Northwest, days	9		
Weather			
Mean relative humidity, per cent	70.0	70.2	
Mean cloudiness, per cent	52	49.4	67, 1901; 27, 1923
Number of clear days	14	9	17, 1921, 1936; 0, 1915
Number of fair days	13	13	25, 1912; 5, 1893, 1933, 1936
Number of cloudy days	4	9	18, 1901, 1928; 2, 1910, 1923
Number of hours bright sunshine	276	237.0	317, 1921; 152, 1915, 1929
Percent of possible hours of bright sunshine	64.3	55.2	
Thunder and lightning	1, 6, 22, 23, 24, 27, 28		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1937. The third column gives extremes observed from 1889 to 1937

REMARKS

The weather during August was dry and considerably warmer than normal. The mean temperature for the month was 72.4 degrees, compared to a normal of 68.4 degrees for August. The mean for the current month has been exceeded only once since 1837, the year records were first taken at Amherst, with a mean temperature of 73.3 degrees in August, 1937. While the mean temperature for the month was unusually high, the maximum temperatures were not extreme. The highest temperature was 93 degrees on the 3rd and 15th.

The total precipitation for the month was 2.04 inches, the normal for August being 4.24 inches. This brings the total precipitation since January 1 to 35.19 inches, while the normal for this same period is 29.46 inches. Rain fell on eight days, while the normal for August is 10. There were 276 hours of sunshine compared to a normal of 237 hours. The total wind movement was 2980 miles, the normal being 3099 miles.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series **Bulletin No. 597** **September, 1938**

Meteorological Observations

FOR

SEPTEMBER

1938

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction.	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	87	3 P	58	12 P	72.5	70	6.2	s	211	20	2-30 A	4-30 A	.11	
2	72	4 P	45	7 A	58.5	62	13.0	n	100	15				
3	75	2 P	41	6 A	58.0	70	5.0	s	62	12				
4	81	2 P	60	2 A	70.5	70	5.0	sw	166	17	5-30 A	6-30 A	.04	
5	69	4 P	49	12 P	59.0	52	9.8	nw	185	20				
6	71	3 P	39	7 A	55.0	61	10.8	s	72	9				
7	67	2 P	45	5 A	56.0	82	0.0	s	113	17	1 P	9 P	.33	
8	66	5 P	47	6 A	56.5	61	9.2	n	212	18				
9	64	4 P	39	6 A	51.5	63	8.7	n	139	17				
10	71	3 P	36	7 A	53.5	63	11.0	s	52	5				
11	74	3 P	39	5 A	56.5	64	9.4	se	66	7				
12	71	2 P	45	5 A	58.0	78	1.9	s	115	11	6 P	12 P	.33	
13	80	4 P	58	12 P	69.0	74	6.2	se	135	17	0 A	8 A	.60	
14	77	2 P	50	6 A	63.5	75	3.4	nw	62	8				
15	78	4 P	62	6 A	70.0	87	0.0	se	85	12	2 A	6-20 P	.98	
16	68	1 P	49	12 P	58.5	64	8.4	nw	148	28				
17	65	2 P	44	3 A	54.5	74	1.0	n	82	11	6 P	10 P	.34	
18	60	5 P	55	8 A	57.5	88	0.0	n	104	9	10 A	12 P	.34	
19	63	6 P	57	1 A	60.0	88	0.0	n	73	9	0 A	12 P	3.44	
20	68	2 P	61	12 P	64.5	86	0.0	n	103	12	0 A	12 P	3.96	
21	65	12 M	55	12 P	60.0	89	0.0	s	274	80	0 A	9 P	3.88	
22	69	2 P	48	5 A	58.5	66	12.2	s	283	20				
23	63	3 P	50	12 P	56.5	83	1.5	s	129	15				
24	79	2 P	48	4 A	63.5	70	9.4	nw	172	22			T	
25	67	3 P	43	6 A	55.0	67	12.0	nw	166	12				
26	72	3 P	37	6 A	54.5	74	9.4	s	81	10			T	
27	72	2 P	52	12 P	62.0	79	3.4	se	207	18	4-30 P	7-30 P	.20	
28	73	4 P	44	7 A	58.5	71	6.1	s	103	10				
29	73	3 P	47	7 A	60.0	71	2.0	nw	76	10				
30	54	1 P	45	7 A	49.5	80	0.0	n	195	14				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M

J. F. HANSON, *Observer*

MONTHLY SUMMARY

September, 1938		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.40, 10th	30.45	30.65, 1924
Minimum	28.41, 21st	29.59	29.32, 1900
Mean semi-daily	30.037	30.068	
Range	1.99	.86	1.20, 1904; 0.57, 1910
Air Temperature			
Highest	87 1st	87.4	97.0, 1895, 1929
Lowest	36, 10th	32.8	24.5, 1914
Mean	59.4	61.6	
Range	51	54.6	
Highest mean daily	72.5, 1st		
Lowest mean daily	49.5, 30th		
Mean maximum	70.5		
Mean minimum	48.3		
Greatest daily range	35, 10th, 11th, 26th		
Least daily range	5, 18th		
Precipitation			
Precipitation. In inches	14.55	3.79	12.34, 1933; 0.52, 1914
Snow, in inches			
Maximum precipitation in 24 hrs.	5.17, 20th and 21st		
Number of days on which .01 or more inches of precipitation fell	12	9	15, 1918; 3, 1903
Wind (miles)			
Total movement	3971	3,252	4,686, 1896; 1,414, 1894
Greatest daily movement	283, 22nd		
Least daily movement	52, 10th		
Mean hourly velocity	5.5	4.5	
Maximum velocity, 5 min.,	80, 21st	22	39, 1915, 1934
Wind (direction)			
Prevailing direction	sw	wsw	
North, days	8		
Northeast, days	0		
East, days	0		
Southeast, days	4		
South, days	11		
Southwest, days	1		
West, days	0		
Northwest, days	6		
Weather			
Mean relative humidity, per cent	72.7	73.7	
Mean cloudiness, per cent	.58	48.7	70.0, 1934; 27, 1908, 1914
Number of clear days	10	9	19, 1932; 2, 1907, 1928
Number of fair days	7	11	19, 1908; 3, 1889
Number of cloudy days	13	10	20, 1934; 4, '08, '16
Number of hours bright sunshine	165	202.5	255, 1916; 106, 1934
Percent of possible hours of bright sunshine	44.2	54.4	
Thunder and lightning	14th, 15th, 19th, 20th		
Frost	10th	19th	Aug. 22, '94, '95; Oct. 13, '09
First frost	10th		

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1937. The third column gives extremes observed from 1889 to 1937

REMARKS

The outstanding feature of the weather during September was the heavy rainstorm from the 17th to the 21st, terminating with the hurricane on the 21st. A total of 11.96 inches of rain fell between 6 P. M. on the 17th and 9 P. M. on the 21st. This storm brought the Connecticut River to a height of 14.9 feet over the Holyoke dam. This is .1 foot higher than in November, 1927, and 1.7 feet lower than in March, 1936. The total rainfall during the month was 14.55 inches. This is the greatest rainfall in Amherst during any month since 1836, the year records were first taken in Amherst. The nearest approach to this heavy rainfall was in July, 1897 when 14.51 inches were recorded. The total rainfall since January 1 is now 49.74 inches, as compared with a normal of 33.25 inches for this period.

The barometer continued high during the rain on the 17th and 18th and until noon on the 19th, reading approximately 30.15 inches when reduced to sea level. At noon (E. S. T.) on the 19th the barometer commenced falling slowly and reached 29.70 by 12 P. M. on the 20th. On the 21st the fall of the barometer was accelerated but did not become unusual until noon when it had fallen to 29.58. Between 12 noon and 2 P. M. it fell .15 inch and by 3 P. M. it reached 29.12. By 4 o'clock the barometer had dropped to 28.72 inches and reached the minimum of 28.41 at 5:05 P. M. During this time the wind rose from 20 miles per hour at 3 P. M. to 38 at 4 P. M., and about 50 at 4:30, and reached 80 miles per hour at 5:17. An average velocity of 57 miles per hour was maintained for 5 minutes beginning at 5:10. After 5:05 P. M. the barometer rose at about the same rate at which it had dropped. The wind gradually decreased in velocity to 65 miles per hour at 5:30 and fell to 22 miles per hour at 7 P. M. On March 1, 1914 there was a sudden drop in the barometer quite similar to that which occurred on the 21st. The lowest reading at that time was 28.47 inches when reduced to sea level. The wind velocity accompanying that storm was only 45 miles per hour.

The wind blew from the north during the rain on the 17th, 18th, 19th and 20th, except from 9 P. M. on the 19th to 6 A. M .on the 20th when it blew from the south. It continued from the north until noon on the 21st when it shifted to southeast and continued from that direction during the storm. After the storm it shifted to south and continued from that direction on the following day.

A large number of trees were uprooted and others were snapped off by the force of the wind, both on the College campus and in the town. Many tobacco barns and poultry buildings were overturned and collapsed. Many roofs were damaged, some blowing off completely. Few substantial buildings were damaged except from falling trees.

The mean temperature for the month was 59.4 degrees, the normal for September being 61.6 degrees. The highest temperature was 87 degrees on the first and the lowest, 36 degrees on the 10th. A very light frost occurred on that date. The normal date for the first frost is September 19.

Dr. J. K. Shaw of the Pomology Department gives the following statement on the fruit crop: "The havoc caused by the extraordinary rainfall of the 17th to the 21st followed by the hurricane of the 21st has never before been even approximated. Nearly all the apples still on the trees were blown off and the remainder injured by the severe wind. Twenty-two per cent of our apple trees were blown over or severely broken."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 598 October, 1938

Meteorological Observations

FOR

OCTOBER

1938

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	60	1 P	40	6 A	50.0	68	10.0	nw	155	22				
2	61	3 P	35	6 A	48.0	69	11.5	n	144	22				
3	63	3 P	41	6 A	52.0	53	11.5	e	145	17				
4	65	3 P	37	7 A	51.0	71	11.6	n	117	13				
5	72	4 P	33	6 A	52.5	73	11.6	w	32	8				
6	55	0 A	46	12 P	50.5	70	1.5	n	191	15				
7	57	4 P	36	12 P	46.5	62	11.4	n	150	11				
8	67	3 P	30	7 A	48.5	61	10.0	nw	74	13			T	
9	63	10 A	43	12 P	54.0	66	10.7	nw	187	22				
10	66	3 P	36	6 A	51.0	69	11.2	nw	102	12				
11	79	5 P	37	6 A	58.0	76	11.2	s	45	7				
12	85	4 P	46	7 A	65.5	71	8.1	s	55	7				
13	78	1 P	54	6 A	66.0	73	8.1	se	119	13				
14	65	4 P	59	9 P	62.0	95	0.1	se	66	6	5-30 A	1-30 P	.10	
15	78	1 P	54	12 P	66.0	80	8.5	w	29	4				
16	82	2 P	45	6 A	63.5	70	10.7	sw	36	6				
17	85	1 P	51	6 A	68.0	66	9.7	s	84	17				
18	67	2 P	52	7 A	59.5	73	0.0	s	117	10				
19	71	2 P	53	4 A	62.0	83	4.2	s	168	13			T	
20	64	2 P	50	12 P	57.0	87	0.0	s	95	22	3-30 P	12 P	.77	
21	63	1 P	42	12 P	52.5	68	8.3	nw	168	18	0 A	7 A	.06	
22	62	4 P	35	7 A	48.5	78	10.3	w	44	6				
23	61	2 P	45	6 A	53.0	80	1.6	se	66	14				
24	62	4 P	48	12 P	55.0	58	0.0	s	131	39	4-30 A	8-30 P	1.35	
25	56	3 P	45	7 A	50.5	49	7.8	w	257	32				
26	66	2 P	35	7 A	50.5	52	10.6	se	155	22				
27	58	3 P	44	8 A	51.0	50	4.5	nw	126	15	1-30 P	8 P	.06	
28	63	2 P	52	4 A	57.5	57	2.7	n	217	22			T	
29	65	1 P	53	4 A	59.0	58	7.2	n	201	22	0 A	1-30 A	.15	
30	61	2 P	49	6 A	55.0	52	8.4	n	258	32				
31	54	3 P	37	8 A	45.5	43	9.0	n	181	17				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M

F. W. WHITTEMORE, *Observer*

MONTHLY SUMMARY

October, 1938		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.49, 3rd	30.53	30.68, 1929
Minimum	29.53, 24th,25th	29.42	29.00, 1926
Mean semi-daily	30.116	30.059	
Range	0.96	1.11	1.47, 1926; 0.76, 1899
Air Temperature			
Highest	85, 12th,17th	79.7	90.5, 1908
Lowest	30, 8th	23.4	17, 1936
Mean	55.2	50.4	
Range	55	56.3	
Highest mean daily	68, 17th		
Lowest mean daily	45.5, 31st		
Mean maximum	66.3		
Mean minimum	44.0		
Greatest daily range	42, 11th		
Least daily range	6, 14th		
Precipitation			
Precipitation. In inches	2.49	3.35	8.81, 1911; 0.01, 1924
Snow, in inches			
Maximum precipitation in 24 hrs.	1.35, 24th		
Number of days on which .01 or more inches of precipitation fell	6	8	15, 1913; 1, 1897, 1924
Wind (miles)			
Total movement	3915	4,023	5,467, 1910; 2,540, 1894
Greatest daily movement	258, 30th		
Least daily movement	29, 15th		
Mean hourly velocity	5.3	5.4	
Maximum velocity, 5 min.,	39, 24th	27	42, 1937
Wind (direction)			
Prevailing direction	wnw	w	
North, days	8		
Northeast, days	0		
East, days	1		
Southeast, days	4		
South, days	7		
Southwest, days	1		
West, days	4		
Northwest, days	6		
Weather			
Mean relative humidity, per cent	67.1	69.2	
Mean cloudiness, per cent	.40	47.6	67, 1932; 18, 1924
Number of clear days	21	8	16, 1934; 1, 1911
Number of fair days	3	11	17, 1924; 4, 1936
Number of cloudy days	7	12	19, 1896; 3, 1924
Number of hours bright sunshine	232	171.0	232, 1923; 91, 1913
Percent of possible hours of bright sunshine	68	50.1	
Thunder and lightning			
Frost	2nd, 4th, 5th, 7th, 22nd, 26th		
First frost	Sept. 10	S 19th	Aug. 22, '94, '95; Oct. 13, '09

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1937. The third column gives extremes observed from 1889 to 1937

REMARKS

The weather during October was unusually pleasant, with warm, clear days and a small amount of rain. The mean temperature was 55.2 degrees, as compared to a normal of 50.4 degrees. This is the highest mean temperature for October since 1920 when it was 56.4 degrees. The highest temperature was 85 degrees on the 12th and 17th. This is the highest temperature for October since 1928 when it reached 86 degrees on the 12th. The lowest temperature was 30 degrees on the 8th. The domestic heating load during the month was 305 degree-days, compared to a normal of 453 degree-days. There were 191 degree-days in September, making the total to date 496 degree-days. The normal for September and October is 611 degree-days.

There were 21 days listed as "clear", which is the largest number of clear days for October on record. There were 232 hours of sunshine, which has not been exceeded since records have been taken at this station but was equaled in October, 1923. Only 2.49 inches of rain fell during the month, while the normal rainfall for October is 3.35 inches. The total precipitation since January 1 is now 52.23 inches, compared to a normal of 36.60 inches for this period. The highest wind velocity during the month was 39 miles per hour on the 24th.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series | Bulletin No. 599 | November, 1938

Meteorological Observations

FOR

NOVEMBER

1938

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	63	4 P	27	8 A	45.0	40	10.3	w	26	3				
2	62	3 P	30	7 A	46.0	46	5.7	n	63	13				
3	56	4 P	41	2 A	48.5	40	3.5	n	106	9				
4	69	3 P	47	8 A	58.0	55	8.8	s	169	18				
5	74	1 P	52	3 A	63.0	64	6.5	se	144	25				
6	68	2 P	62	5 A	65.0	95	3.7	se	155	10	3-30 A	4 A	.04	
7	75	1 P	58	12 P	66.5	84	5.5	se	165	25				
8	67	3 P	44	12 P	55.5	93	2.0	se	273	22	6-30 P	12 P	.18	
9	52	1 P	36	12 P	44.0	57	10.0	w	304	28	0 A	2-30 A	.14	
10	68	2 P	30	7 A	49.0	62	10.0	se	78	7				
11	67	1 P	29	6 A	48.0	82	7.5	ne	47	4				
12	65	3 P	38	4 A	51.5	89	5.0	n	40	8				
13	61	4 P	40	7 A	50.5	95	0.2	s	110	22			T	
14	48	9 A	31	12 P	39.5	50	5.5	nw	314	44				T
15	44	2 P	30	1 A	37.0	63	8.5	w	205	22				T
16	43	2 P	29	7 A	36.0	57	9.8	n	120	18				T
17	41	3 P	31	5 A	36.0	98	0.0	n	82	7	4 A	10-30 A	.36	
18	59	12 P	34	8 A	46.5	98	0.0	nw	52	8			T	
19	62	4 A	38	12 P	50.0	87	0.0	nw	233	28	8 A	12 P	.59	
20	51	4 P	31	12 P	41.0	74	7.6	nw	154	15				
21	52	4 P	27	12 P	39.5	74	9.6	sw	57	9				T
22	51	6 P	27	7 A	39.0	96	0.0	se	64	11				
23	43	4 A	29	12 P	36.0	78	2.3	nw	153	20	3-30 P	12 P	.18	
24	29	0 A	17	12 P	23.0	77	0.0	n	293	25	5 P	12 P	.50	5.0
25	23	4 P	8	12 P	15.5	82	6.5	nw	423	39	0 A	8 A	.66	6.5
26	23	3 P	−4	3 A	9.5	81	6.3	n	74	11				
27	29	2 P	12	12 P	20.5	93	2.0	n	189	17	3 A	10-30 A	.17	2.0
28	34	2 P	1	4 A	17.5	84	6.0	n	94	12				
29	39	4 P	21	5 A	30.0	71	6.8	s	196	17				
30	43	2 P	34	8 A	38.5	71	2.4	s	110	20				

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

F. W. WHITTEMORE, *Observer*

MONTHLY SUMMARY

November, 1938		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.64, 26th	30.58	30.87, 1932
Minimum	29.57 13th	29.34	28.73, 1904
Mean semi-daily	30.172	30.046	
Range	1.08	1.29	1.84, 1904; 0.94, 1935
Air Temperature			
Highest	75, 7th	65.3	75.0, 1924
Lowest	-4, 26th	13.8	3.5, 1891
Mean	41.5	38.6	
Range	79	51.4	
Highest mean daily	66.5, 7th		
Lowest mean daily	9.5, 26th		
Mean maximum	52		
Mean minimum	31		
Greatest daily range	38, 10th, 11th		
Least daily range	6, 6th		
Precipitation			
Precipitation. In inches	2.82	3.45	8.64, 1927; 0.63, 1917
Snow, in inches	13.50	2.05	9, 24; t, 89, 93, 03, 12, 18, 19 22, 27, 32, 34
Maximum precipitation in 24 hrs. 1.16, 24th, 25th			
Number of days on which .01 or more inches of precipitation fell	9	9	22, 1921; 2, 1904
Wind (miles)			
Total movement	4493	4,564	5,978, 1906; 2,589, 1889
Greatest daily movement	423, 25th		
Least daily movement	26, 1st		
Mean hourly velocity	6.2	6.3	
Maximum velocity	44, 14th	29	40, 1915
Wind (direction)			
Prevailing direction	nnw	w	
North, days	9		
Northeast, days	1		
East, days	0		
Southeast, days	6		
South, days	4		
Southwest, days	1		
West, days	3		
Northwest, days	6		
Weather			
Mean relative humidity, per cent	74.8	70.1	
Mean cloudiness, per cent	.61	53.5	72, 1900; '27; 34, 1917
Number of clear days	10	6	15, '03; 1, '00, '11, '27
Number of fair days	10	9	16, '12; 4, '89, 30, 32, '35
Number of cloudy days	10	15	24, '27; 9, '90, '05, '17
Number of hours bright sunshine	152	121.0	182, 1903; 66, 1927
Percent of possible hours of bright sunshine	51.9	41.3	
Thunder and lightning			
Frost			
First snow	14th	Nov. 5	Oct. 10, '25; Nov. 27, '31

NOTE—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1937. The third column gives extremes observed from 1889 to 1937

REMARKS

The weather during November was record-breaking in several respects. The outstanding feature was the snowstorm on the 24th and 25th, which was accompanied by high wind that caused much drifting. A total of 11.50 inches was recorded during this storm, which is a very heavy fall for such an early date. On the 27th two inches more fell, bringing the total for the month to 13.50 inches. This is the heaviest snowfall for November ever recorded at the station, the nearest approach being 9 inches in 1924. Snowfall records have been taken since 1889.

The mean temperature for the month was 41.5 degrees, as compared to a normal of 38.6 degrees. The first half of the month was extremely warm, with a maximum temperature of 75 degrees on the 7th. This is the highest temperature on record for a November day, and it has been equalled only once—in November, 1924. The lowest temperature was –4 degrees on the 26th, which breaks another record for November. The previous record was 3.5 degrees above zero on November 30, 1891. Temperature records have been taken since 1838.

The domestic heating load for November was 705 degree-days, compared to a normal of 792 degree-days. The load for the heating season is now 1200 degree-days, the normal for this period being 1403 degree-days.

The total precipitation was 2.82 inches; the normal, 3.45 inches. This brings the total precipitation since January 1 to 55.05 inches, as compared to a normal of 40.05 inches for the same period. There were 152 hours of bright sunshine, the normal for November being 121 hours. The mean relative humidity was 74.8 percent; the normal, 70.1 percent.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 600 December, 1938

Meteorological Observations

FOR

DECEMBER

1938

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature.							Wind.			Precipitation.			
	Maximum		Minimum.											
Day.	Degrees	Time.	Degrees	Time.	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	39	0 A	16	12 P	27.5	32	9.3	nw	314	28				
2	24	3 P	7	6 A	15.5	57	9.3	ne	135	15				
3	29	12 P	4	2 A	16.5	77	0.2	nw	26	4	11 P	12 P	.04	
4	56	3 P	29	0 A	42.5	82	9.2	sw	92	13	0 A	4 A	.40	
5	40	4 P	20	2 A	35.0	98	0.0	nw	40	13	8 A	12 P	1.26	
6	47	8 A	35	0 A	41.0	80	0.0	nw	136	20	0 A	12 M	.61	
7	48	2 P	36	12 P	42.0	60	8.0	nw	191	28	0 A	1-30 A	.03	
8	45	4 P	31	8 A	38.0	85	3.5	nw	49	8			T	
9	44	4 P	41	6 A	42.5	97	0.0	nw	140	9	9-30 A	4 P	.22	
10	46	4 P	41	2 P	43.5	83	0.5	sw	201	39	3-30 A	3 P	.67	
11	44	0 A	33	12 P	38.5	77	0.0	nw	157	15				
12	40	3 P	32	1 A	36.0	79	1.3	nw	113	25				
13	42	2 P	27	12 P	34.5	59	9.1	nw	201	20				
14	41	1 P	23	12 P	32.0	61	5.0	s	195	32				
15	28	2 P	16	8 A	22.0	54	9.1	nw	226	28				
16	33	2 P	11	7 A	22.0	68	9.0	nw	67	8				
17	33	12 P	20	0 A	26.5	92	0.0	nw	48	7	8 P	9 P	.01	
18	35	3 A	32	12 P	33.5	96	0.0	nw	102	10	10 A	8 P	.07	T
19	35	4 P	32	0 A	33.5	88	0.0	n	173	18				
20	35	3 P	25	12 P	30.0	68	0.0	n	177	14				
21	28	2 P	22	8 A	25.0	78	1.8	nw	59	10				
22	31	12 M	20	12 P	25.5	51	9.0	nw	333	40				
23	24	8 P	17	6 A	20.5	66	0.0	n	126	12				T
24	32	5 P	23	2 A	27.5	93	0.0	nw	25	4				T
25	39	4 P	24	5 A	31.5	63	7.5	nw	155	22				
26	32	4 P	12	7 A	22.0	65	7.2	nw	71	12				
27	43	4 P	28	0 A	35.5	80	1.5	se	182	28	1 A	10 A	.54	1.50
28	24	0 A	17	12 P	20.5	45	8.0	nw	420	48				
29	28	8 P	7	8 A	17.5	70	4.2	s	124	14				
30	30	9 A	16	12 P	23.0	53	7.3	nw	228	32				T
31	26	2 P	11	7 A	18.5	91	6.0	s	65	8	5 P	9 P	.10	1.50

*Based on least time required to blow one mile.

NOTE—Beginning May 1st, 1929 relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

F. W. WHITTEMORE, *Observer*

MONTHLY SUMMARY

December 1938		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.85, 17th	30.65	30.96, 1889
Minimum	29.30, 6th	29.25	28.85, 1915
Mean semi-daily	30.052	30.056	
Range	1.55	1.40	1.78, 1895; 1.01, 1892
Air Temperature			
Highest	56, 4th	54.5	65.5, 1908
Lowest	4, 3rd	–2.3	–22.5, 1917
Mean	29.7	27.3	
Range	52	56.8	
Highest mean daily	43.5, 10th		
Lowest mean daily	15.5, 2nd		
Mean maximum	36.2		
Mean minimum	23.2		
Greatest daily range	27, 4th		
Least daily range	3, 9th, 18th, 19th		
Precipitation			
Precipitation, inches	3.95	3.47	7.77, 1901; 0.87, 1896
Snow, inches	3.00	8.99	26.50, '02; t, 1891
Maximum precipitation in 24 hrs.	1.81, 5th, 6th		
Number of days on which .01 or more inches of precipitation fell	11	9	17, 1902; 4, 1892
Wind (miles)			
Total movement	4571	4,726	6,694, 1925; 3,239, 1918
Greatest daily movement	420, 28th		
Least daily movement	25, 24th		
Mean hourly velocity	6.1	6.4	
Maximum velocity	48, 17th	29	45, 1934
Wind (direction)			
Prevailing direction	nw	w	
North, days	3		
Northeast, days	1		
East, days	0		
Southeast, days	1		
South, days	3		
Southwest, days	2		
West, days	0		
Northwest, days	21		
Weather			
Mean relative humidity, per cent	72.6	68.9	
Mean cloudiness, per cent	59	53.4	71, 1929; 39, 1919
Number of clear days	12	8	15, 1890; 2, 1922, 1933
Number of fair days	4	10	16, '09; 4, '89, '30, '31, '36
Number of cloudy days	15	13	19, '11, '22; 7, '09, '23
Number of hours bright sunshine	126	130.7	172, 1896; 63.1, 1933
Per cent of possible hours of bright sunshine	44.5	46.0	
First snow	Nov. 14	Nov. 5	Oct. 10, '25; Nov. 27, '31

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1937. The third column gives extremes observed from 1889 to 1937.

ANNUAL SUMMARY

Annual 1938		Normal	Extremes
Barometer (Readings reduced to sea level)			
Maximum	30.88, Feb. 2	30.81	31.05, 1920
Minimum	28.41, Sept. 21	28.95	28.47, 1914
Mean semi-daily	30.046	30.016	
Range	2.47	1.86	2.33, 1913; 1.38, 1933
Air Temperature			
Highest	93, Aug. 3 and 15	95.8	104, 1911
Lowest	–12, Jan. 19	–12.1	–26.0, 1904
Mean	49.2	47.2	49.6, 1913; 44.0, 1904
Monthly range	105	108.0	
Highest mean daily	82.5, Aug. 16		
Lowest mean daily	3.0, Jan. 18		
Mean maximum	59.4	57.8	
Mean minimum	39.0	36.5	
Greatest daily range	45, Mar. 22		
Least daily range	3		
Precipitation			
Precipitation, inches	59.00	43.49	57.05, 1897; 30.68, 1908
Snow, inches	42.50	48.38	78.00, 1920; 24.50, 1919
Maximum precipitation in 24 hrs.	5.17, Sept. 20 and 21		
Number of days on which .01 or more inches of precipitation fell	126	123	144, 1902; 96, 192[illegible]
Wind (miles)			
Total movement	48,765	52,321	63,571, 1908; 36,257, 1894
Greatest daily movement	453, Feb. 28		
Least daily movement	25, Dec. 24		
Mean hourly velocity	5.6	6.0	
Maximum velocity	80, Sept. 21	35	48, 1932, 1934, 1937
Wind (direction)			
Prevailing direction	w	w	
North, days	49		
Northeast, days	5		
East, days	10		
Southeast, days	57		
South, days	73		
Southwest, days	20		
West, days	38		
Northwest, days	113		
Weather			
Mean relative humidity, per cent	67.2	67.6	
Mean cloudiness, per cent	56.6	50.8	60, '98, '01, '02; 41, '08, '24
Number of clear days	153	109	169, 1932; 59, 1927
Number of fair days	97	128	182, 1912; 83, 1894
Number of cloudy days	115	128	179, '01, '02; 71, 1910
Number of hours bright sunshine	2431	2,356	2,838, 1924; 1,864, 1902
Per cent of possible hours of bright sunshine	54.6	53.0	
Last frost	May 31	M'y12	Apr. 23, '04; June 8, '32
First frost	Sept. 10	S't 19	Aug. 22 '94, '95; Oct. 13,'09
Last snow	April 10	Apr14	Mar.14, '10; May5, '91, '17
First snow	Nov. 14	Nov 5	Oct. 10, '25; Nov. 27, '31

Note.—The first column in the above summary gives observations made during the year. The second column gives the averages based on observations made from 1889 to 1928, except that humidity records are based on observations made from 1929 to 1937. The third column gives extremes observed from 1889 to 1937.